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COMPILED BY

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and

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# AMPHIBIA

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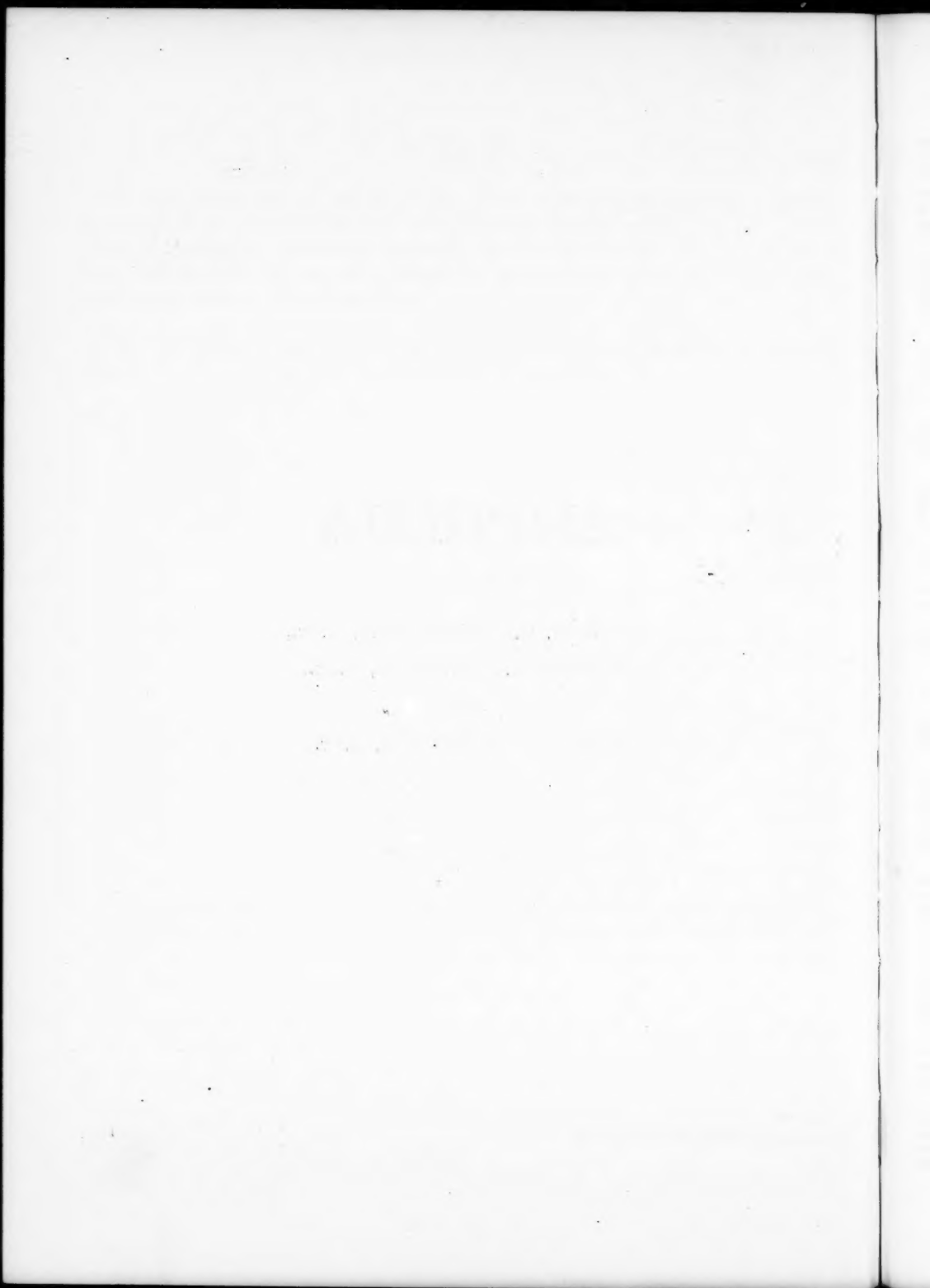
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## CONTENTS

	PAGE
I. TITLES ... ..	4
II. SUBJECT INDEX ... ..	27
General ... ..	27
Structure ... ..	28
Physiology ... ..	30
Reproduction and Sex ... ..	35
Development ... ..	35
Evolution and Genetics ... ..	38
Ecology and Habits ... ..	39
Geographical Distribution ... ..	41
Palaeontology and Geological Distribution ... ..	42
III. SYSTEMATIC INDEX ... ..	42
General ... ..	42
Gymnophiona ... ..	43
Caudata ... ..	43
Anura ... ..	47

## I.—TITLES

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**Zaleska, A.**, see Morawska, B.

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## II.—SUBJECT INDEX

References to the "Titles" are by the name(s) of the Author(s) printed in clarendon type.

### GENERAL LITERATURE AND HISTORY

**Text-books.**—Fossil Amphibians and Reptiles, Swinton.

**General Works.**—Importance of amphibian remains in stratigraphy, Lapparent, Claracq & Nougarede.—Evolution of Amphibia, Schmalhausen, (4).

**Bibliography.**—Of Mookerjee, see Bhaduri.—Distributional reports on amphibians of E. Canada and zoogeography, Bleakney, J. S.—List of scientific publications by L. Glauert, Serventy.

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**Nomenclature.**—Suppression of *Acrodytes* Fitzinger, 1843, of *tibiatric* Laurenti, 1768 as published in the combination *Hyla tibiatric* and interpretation of *Rana venulosa* Laurenti, 1768, Opinion 520.

**Obituary.**—An appreciation of Karl P. Schmidt, Anon [E. H. C.].—Of Joseph R. Slevin, Anon (6).—Of H. K. Mookerjee, Bhaduri.—Of K. P. Schmidt, see Cei (3).—Of Malcolm A. Smith, Grandison (1).

**Reviews.**—Normal table of *Xenopus laevis* edited by P. D. Nieuwkoop and J. Faber, Anon (1).—Die Reptilien und Amphibien Mitteleuropas by R. Sternfeld (2nd edition), Anon (2).—A Field Guide to Reptiles and Amphibians of Eastern North America by Roger and Isabelle Conant, Adler (1).—Terrarienkunde. 2. Teil Lurche by W. Klingenhöffer, Gans.—Amphibia of Ceylon by P. Kirtisinghe, Grandison (2).—Vertebrates of the United States by Blair, Blair, Cagle, Brodtkorb and Moore, Hecht (1).—A short note on the finding of Anuran in the "porphyritic complex of the extraandean Patagonia" with considerations of Geological compositions of same by P. N. Stipanovich and O. A. Reig, Hecht & Ruibal.—Vida de batracios y reptiles sudamericanos by M. A. Freiberg, Oliver (1).—Sounds of N. American frogs by C. M. Bogert, Oliver (2).—Zoogeography: the geographical distribution of animals by P. J. Darlington, Savage.

### STRUCTURE AND HISTOLOGY

**Alimentary System.**—Comparison digestive systems of vertebrates, Baer.—Distribution of hepatic glycogen in *Pleurodeles waltlii*, Bellec (1).—Histology of oesophagus of *Rana chensinensis*, Eksaeva.—Buccopharyngeal mucous membrane of urodeles and caecilian, Elkan, (1).—Development and structure of the pancreas in *Ambystoma*, Frye.—Masticatory musculature of *Cryptobranchius japonicus*, Schumacher (1).

**Biochemistry.**—Hepatic glycogen in *Pleurodeles waltlii*, Bellec (1).—Histochemical location of acid phosphatase in dendrites of *Rana*, Cert & Chacko.—Histochemical studies on the distribution of phosphatases and mucopolysaccharides in the oviduct of the toad *Bufo*, Chu & Chin.—Nucleic acid content of liver nuclei compared, England & Mayer.—Skin extracts of *Leptodactylus* and their biochemical use, Erspamer.—Mononucleotide composition of ovarian nucleic acids of *Rana catesbeiana*, Finamore & Volkin.—Glycogen contents of ovarian, body cavity and uterine eggs of *Rana pipiens*, Fitch, & Merrick.—Localisation of phosphorus and the site of calcium binding in yolk protein of frog's egg, Flickinger & Schjeide.—Chemistry of venoms produced by *Bufo* sp., Frèrejacque.—Some constants of toad fat, Fromm.—Mucopolysaccharides in the kidney of *Rana*, Geyer, G.—Fluorescent pterines and flavines in eye of *Rana nigromaculata*, Hama & Horiuchi.—Histochemical tests and pigment extractions from *Plethodon cinereus*, Hertzler.—Histochemical study of peroxidase, Kawasaki.—Amino acid composition of *Xenopus laevis* skin gelatin, Leach.—Cytochemical nature of cytoplasmic granules in amphibian erythrocytes, Nagatani.—Morphological study of lipids in *Rana* oogenesis, Nath, Gupta & Kaur.—Protein synthesis in *Triturus* oocytes, Pantelouris.—Histochemical study of the right abdominal musculature of the frog, Pecot-Dechavassine.—Histochemistry of rods and cones in frog and *Amphiuma* retinas, Sidman & Wislocki.—Inorganic phosphate localised in nucleoli of oocytes of *Bufo arenarum*, Tandler.—Histochemical studies on alkaline phosphatase of salamander retina, Yoshida (2).

**Circulatory System.**—General points of interest in the amphibian circulatory system, Baer.—Blood

system in the hypophysis of anurans, Cruz.—Vascularisation of the respiratory surfaces in *Ambystoma mexicanum*, Czopek.—Spleen modification and development in *Taricha torosa*, De Lannoy.—Methylthiouracil on blood corpuscles of *Rana ridibunda*, Gräbe-Broda.—Histology of the heart of adult *Triturus cristatus*, Gyéval.—Evolution of a potential in the ventricle wall and Purkinje fibres of the frog heart, Lacquet.—Comparative researches on the catalase activity of blood in the various classes of Vertebrata, Liotti.—Classification of cytoplasmic granules in amphibian erythrocytes, Nagatani.—Retinal blood supply in Anura, Polyak.

**Cytology.**—Observations on spinal ganglion cells of *Rana pipiens*, Anderson & Breemen.—Heteroploid embryos of *Pleurodeles waltlii*, Beetschen (2).—Mitotic anomalies at the site of origin of genetic aneuploids of *Pleurodeles*, Beetschen (3).—Distribution of hepatic glycogen in *Pleurodeles waltlii*, Bellec (1).—Research into the amount of cellular nephrostomal tissue incorporated in the development of the female genital opening of *Rana dalmatina*, Cambar & Dechambe.—Electron microscope studies of mitochondria and the Golgi substance in cells of amphibian larvae, Carasso.—Histological structures of the toad oviduct after the laying of eggs, Chu & Chin.—Structure of the oesophagus of *Rana chensinensis*, Eksaeva.—Buccopharyngeal mucous membrane of *Schistometopum* and urodeles, Elkan (1).—A mutation reducing nucleolar number in *Xenopus laevis*, Eldsall, Fischberg & Smith.—Comparative nucleic acid content of liver nuclei, ova nuclei and spermatozoa in *Rana pipiens*, England & Mayer.—Chromosome number constancy in larval salamanders, Fankhauser & Dluhy.—Cytomorphosis of Rohon-Beard cells during embryonic and larval development of *Rana*, Filippio.—Amino acids, arginine and sulphhydryl proteins in pancreatic cells of salamanders, Gabe.—Heart of adult *Triturus cristatus*, Gyéval.—Nuclear size in experimental hybrid toads, Hertwig, Ruhland & Weiss.—Histological differentiation in the marginal zone of amphibian eggs, Ikushima.—The Golgi apparatus of the cells of the amphibian pancreas, Kanwar.—Mast cells in the choroid plexus of the axolotl, Kappers, Ten Kate & Bruyn.—Electron micrograph study of the crystalline lattice in yolk platelets of *Triturus pyrrhogaster*, Karasaki & Komoda.—Electron microscope study of lampbrush chromosomes of Amphibia, Lafontaine & Ris.—The cytoplasmic inclusions of the ageing neurones of *Rana tigrina*, Malhotra.—Chromosomes from the spermatogonial and oogonial metaphase plates of *Bufo melanostictus*, Natarajan.—Cytoplasmic granules in erythrocytes stained with carcinogenic azo-dyes, Nagatani.—Chromosomes of *Triturus boscai* and of the gonads of larval salamanders, Sacarrão.—Anterior pituitary and thyroid gland of *Xenopus laevis*, Saxén.—Teeth of *Megalobatrachus*, Schmidt, W. J. (2).—Histological studies of corium in tadpoles of *Rana catesbeiana*, Shimozawa.—Histochemistry of rods and cones of *Amphiuma* and frog, Sidman & Wislocki.—Histology of frog isolated epithelium cells, Skjellevale, Nieder & Huf.—Nuclear degeneration in the gonad of *Triturus* under external influence, Stärk (2).—Special condition of the interphase nucleus in normal and tumorous cells of fishes, amphibians and reptiles, Stolk (1).—Abnormal tumours and normal skin development in *Triturus taeniatus*, Stolk (2).—Commissural systems of the cerebellum of *Megalobatrachus japonicus*, Tamura, Yashiki, Kondo & Numata.—Histological effects of ultra-violet light

irradiation of the limb tip of urodele larvae, **Thornton**.

—Cytology of the hypothalamic neurosecretory cells of *Hyla regilla* in normal animals and after transection of the infundibular stalk, **Wilson, Weinberg & Bern**.—Nature of chiasmata in and size of, the lateral loop chromosomes of oocytes of *Triturus pyrrhogaster* and *T. viridescens*, **Wischnitzer**.—Comparative volumetric analysis of nuclei and cells of several amphibians, **Ziemann**.

**Dentition**.—Histology of teeth of *Megalobatrachus japonicus*, **Schmidt, W. J. (2)**.—Arrangement of teeth in † *Paracyclotosaurus*, **Swinton**.

**Excretory System**.—Urinogenital systems of Amphibia; comparative account, **Baer**.—Development and degeneration of pronephros in *Rana sylvatica* tadpoles, **Hurley**.

**Fat Body**.—Saponification value, iodine value and other fat constants of *Bufo marinus* fat body, **Fromm**.

**Glands**.—Cutaneous glands present in amphibians, **Baer**.

**Glands: Endocrine**.—Histochemical tests on the basophil character of the pancreatic cells of salamanders, and salivary glands of snails, **Gabe**.—Quantitative analysis of thyroid development during metamorphosis of *Nectophrynoides occidentalis*, **Lamotte & Prun**.—Hatching glands of *Polypedates burgeri*, **Yanai**.—Hatching glands of *Hyla arborea japonica*, **Yanai & Takayanagi**.

**Integument**.—Analysis of the dorsal pigmentation of *Discoglossus pictus*, **Bedate**.—Structure and vascularization of the skin of larval *Ambystoma mexicanum*, **Czopek**.—Preserved dermal scutes of *Laidleria* reflecting the nature of the skin, **Kitching**.—Characterization and localization of frog skin cholinesterase, **Koblick**.—Iodine accumulation in pigmented tissues of amphibian larvae, **Koshida (1)**.—Amino acid composition of *Xenopus laevis* skin gelatin, **Leach**.—*Triturus taeniatus* adepidermal reticular network of the skin in normal and tumorous newts, **Stolk (2)**.

**Laboratory Technique**.—A procedure for staining and sectioning heads of adult *Anura*, **Baldauf, (2)**.—Isolation of an m-hydroxyphenyl-ethyl-trimethylammonium from the skin of *Leptodactylus*, **Erspermer**.—Demonstration of operation technique at yolk plug stage of determining the potency of the notochord as an inductor, **Eyal-Giladi**.—A new substance for casting amphibians for exhibition, **Fendler**.—Maintenance of gonads from *Rana* larvae in different media, **Foot, C. L. & F. M. (1)**.—Sectioning heavily yoked frog eggs and calcified skin, **Griffiths & Carter**.—Various methods for anaesthetizing and casting amphibians, **Müller-Gehring**.—The preparation of orientated section preparations of Amphibia, **Wessing & Claes**.

**Myology**.—M. depressor mandibulae in *Bufo variceps*, **Baldauf (1)**.—Glycogen phosphorylation in varying conditions in frog muscle, **Cordier & Duveau (1)**.—Major features of myology of *Centrolene prosoblepon*, **Eaton**.—Musculature of *Rana esculenta* after parasitism by cystic helminths, **Gianotti**.—The structures of fast and slow muscle fibres in the frog, **Gray**.—Of the vocal sac region in *Bufo alvarius*, **Inger, (1)**.—Structure of myocardium in frog studied by electron microscope, **Khristoliubova**.—Striated muscles in

frogs, **Koloss**.—Study on the head musculature of *Cryptobranchus japonicus*, **Schumacher (1)**.—Morphology of urodele musculature, **Schumacher (2)**.

**Nervous System**.—Cranial morphology of *Bufo variceps*, **Baldauf (1)**.—Organisation in aggregates of anterior neural plate cells of *Triturus alpestris*, **Botenbrood**.—Composition of the spinal ganglia of *Xenopus*, **Hughes & Tschumi**.—Mast cells in the choroid plexus of the axolotl, **Kappers, Ten Kate & Bruyn**.—Gomori-positive reactions of sulphhydryl substances in the hypothalamus and hypophysis of the toad, **Lasansky & Sabatini**.—Ageing neurones of *Rana tigrina*; a cytological study, **Malhotra**.—Efferent fibres in optic nerve of *Bufo bufo* and the effect on them of nerve section, **Maturana**.—Effect on nervous system of successive orthotopic limb grafts in *Bufo vulgaris*, **Notarnicola**.—Extrinsic and intrinsic factors in the development of the spinal cord and ganglia in *Anura*, **Perri (1)**.—Anatomy of sympathetic rami in *Rana pipiens*, **Pick**.—Ultrastructure of Schmidt-Lauterman Clefts and shearing defects of the myelin sheath in sciatic nerves of *Rana*, **Robertson**.—Comparative analysis of Anuran brains, **Samtleben**.—Commissural systems of the cerebellum of *Megalobatrachus japonicus*, **Tamura, Yashiki, Kondo & Numata**.—Anatomy of the hypothalamic neurosecretory system of *Hyla regilla*, **Wilson, Weinberg, & Bern**.

**Osteology**.—Osteology of amphibians, **Baer**.—Cranial morphology of *Bufo variceps*, **Baldauf (1)**.—Of *Centrolene prosoblepon*, **Eaton**.—Of species of *Bolitoglossa*, **Hansen & Tanner**.—Interclavicular of the first middle Triassic Labyrinthodont recorded from China (affinities with *Heptasaurus* and *Mastodonsaurus*), **Huene (1)**.—The labyrinth and middle ear of *Xenopus laevis*, **Kahmann & Frettlöh**.—Tissue staining with particular reference to cartilage, **Kawasaki**.—Skeleton of a new amphibian from the Lower Triassic of S. Africa, **Kitching**.—Measurements of disarticulated *Rana pipiens* skeletons, **Olson & Miller**.—Morphology of urodele vertebral column and origin of centra, **Schmalhausen (1)**.—Urodele vertebral column; the transverse processes and ribs, **Schmalhausen (2)**.—Nasolachral duct and septomaxilla of urodeles, **Schmalhausen (3)**.—Metamorphosis and growth of the hypobranchial apparatus in *Bufo regularis*, **Sedra & Michael**.—Ontogenesis of the vertebral column of *Bufo regularis*, **Sedra & Moursi**.—Leg length variations in *Rana sylvatica*, **Suzuki**.—Skulls and skeletons of fossil Amphibia, **Swinton**.—The teeth, premaxillae, prevomers, parasphenoid, hyobranchium and vertebrae of the Ambystomidae, **Thien**.

**Reproductive System**.—Morphological and histochemical changes in the testes of *Rana pipiens* after injections of gonadotrophins, **Burgos & Ladman**.—*Rana dalmatina* female genital opening and amount of pronephric material combined in its development, **Cambar & Dechambe**.—Experiments on the development of the genital opening after removal of the pronephros, **Dechambe**.—Cellular changes in gonads of frog larvae on synthetic media for varying periods of time, **Foot & Foot (2)**.—Effect of testosterone-propionate on sex differentiation and structure of reproductive system in *Hynobius*, **Hanasaka (2)**.

**Respiratory System**.—Bucco-pharyngeal mucous membrane of *Schistometopum* and urodeles, **Elkan (1)**.

—Vascularization of respiratory surfaces in ontogeny of *Ambystoma mexicanum*, **Czopek**.—Origin, development and changes of the gills and lungs of *Kaloula borealis*, **Giang & Li**.

**Sense Organs.**—Amphibian sense organs compared with those of other vertebrates, **Baer**.—Method of measuring the spectral absorption of photopigment in *Xenopus* rods, **Dobrowolski, Johnson & Tansley**.—Localisation of fluorescent pterines and flavines in the eye of *Rana nigromaculata*, **Hama & Horiuchi**.—The labyrinth and middle ear of *Xenopus laevis*, **Kahmann & Frettlöh**.—Historical review of investigations of the eye and of the visual pathways and centres of the brain, **Polyak**.—Histochemistry of rods and cones in retinas of frog and *Amphiuma*, **Sidman & Wislocki**.

**Teratology.**—New type of polydactyly in *Rana esculenta*, **Rostand (1)**.—Accessory limbs and reduction of shin bone in frogs, **Voitkevich, (1)**.—Spatial relations between true limbs and accessory limbs developing under natural conditions, **Voitkevich (2)**.

**Tongue.**—Tongue action in *Hydromantes*, **Elkan (2)**.

### PHYSIOLOGY

**General Works.**—Hypothetical interpretation to explain the physiological mechanism operating in the determination of bilateral symmetry in amphibian embryos, **Løvtrup**.

**Biochemistry.**—Distribution of inorganic phosphate in *Bufo marinus* muscle, **Briner, Simon & Shaw**.—Tests on frogs to determine whether the melanophore dispersing substance in human pregnancy urine is a 3,4-dihydroxybenzene derivative, **Burgers & Mighorst**.—Effect of an oxygen lack on the phosphorylation of glycogen in frog muscles, **Cordier & Duveau (1)**.—Effect of asphyxiation on the phosphorylation of the hepatic cells glycogen in *Rana esculenta*, **Cordier & Duveau (2)**.—Phosphorylation of liver glycogen in *Rana esculenta*, **Cordier, Duveau & Brandon**.—Diminution of dipeptidase activity by X irradiation, **Coromaldi (1)**.—Evidence of a ribonucleoprotein concerned in the adhesion of cells and the binding of calcium to the cell surface, **Curtis**.—Vitamins A, B<sub>1</sub>, C and PP in newt muscle regeneration, **Degan & Asandei**.—Peculiarity of carbohydrate metabolism of the bullfrog heart, **Hashimoto, Morita & Matsuyama**.—Histochemical reactions of the skin glands of *Rana temporaria* and *Discoglossus pictus* after injections of reserpine, **Lidbeck-Hutter & Baq**.—Temperature influence on relation of liver tissue respiration to glycogen content in *Rana esculenta*, **Locker & Doneff**.—Temperature adaptation of cell enzymes in *Rana temporaria*, **Mews**.—Relation of melanophore-expanding hormone to hyperglycaemia in *Xenopus laevis*, **Munday**.—Histochemical study of lipids in *Rana oogenesis*, **Nath, Gupta & Kaur**.—Cytochrome-c-oxidase cycle in larval *Bufo bufo*, **Petrucci**.—Cytochemical investigation of the cortical cytoplasm of the developing oocyte of *Rana pipiens*, **Rosenbaum**.—Biosynthesis of phosphoprotein in the frog, **Sampath Kumar et al.**.—Enzyme activity in the isolated inner and outer segments of the receptor cells of frog retina, **Yoshida (1)**.

**Body temperature.**—Temperature economy in salamanders, **Freytag (3)**.

**Circulation.**—Temperature effects on the electrocardiogram of *Xenopus*, **Biörck & Johansson**.—

Reactions of blood circulation to irradiation, **Bücker & Hanke**.—Circulation of blood in hypophysis of anurans, **Cruz**.—Spectral absorption curve of haemoglobin of *Xenopus laevis*, **Dobrowolski, Johnson & Tansley**.—Histochemistry of the hearts of *Triturus cristatus* adults, **Gyéval**.—Carbohydrate metabolism of the isolated bullfrog heart, **Hashimoto, Morita & Matsuyama**.—Effect on the pulmonary circulation of introducing chemical solutions to the pulmonary cavity of the frog, **Jullien, Cardot & Moulin**.—Frog heart rhythm and a cardiomotor substance of nervous origin, **Jullien, Ripplinger & Cardot**.—Arterial ligatures and subsequent survival in frogs, **Jullien, Ripplinger, Cardot & Baylé**.—Cessation of the pulmonary circulation and the possibility of survival in the frog, **Jullien, Ripplinger, Cardot, Baylé & Tisserand**.—Various effects of solutions of sodium, potassium and calcium on the heart of larval *Triton alpestris*, **Jullien, Ripplinger, Cardot & Marcot**.—Action of alkaline solutions on the pulmonary circulation of the frog, **Jullien, Ripplinger, Cardot & Moulin**.—Modifications in lung circulation caused by alkaline solutions of sodium potassium and calcium introduced into the pulmonary cavity, **Jullien, Ripplinger, Cardot, Moulin & Thomas**.—Nervous activity and dynamics of frog heart, **Kolatat, Kramer & Mühl**.—Blood oxygen capacity in frogs, **Leftwich**.—Cellular membrane potentials and Ca and Na antagonism in frog heart, **Lüttgau & Niedergörke**.—Seasonal variation in drug sensitivity of *Bufo marinus* heart, **Naylor**.—Cutaneous vasomotor reflexes in the edible frog, **Poczopko**.—Blood pressure and pressure pulses in the arterial arches of *Rana* and *Bufo*, **Simons**.—Calcium and strontium antagonism in frog heart, **Thomas**.—Extra cellular potassium effect on beating heart of intact toad, **Trethewie & St.Clair**.

**Coloration: Pigments.**—Melanophores of *Xenopus laevis*, **Bagnara (2)**.—Hormone control of anuran pigmentation, **Bagnara & Neidelman**.—Reaction of melanophores of *Xenopus laevis* to various substances, **Burgers**.—Light absorption and bleaching of visual purple in frog retina, **Denton & Wyllie**.—Spectral absorption curve of the photopigment in single rods of *Xenopus laevis*, **Dobrowolski, Johnson & Tansley**.—Migration of chromatophores from grafts on the flank of ghost hosts, **Finnegan**.—Study of absorption spectra of "Rana chrome I", **Goto & Hama**.—Fluorescent substances of pterin type in the adult skin of *Bufo vulgaris formosus*, **Hama & Obika**.—The red and black pigments of *Plethodon cinereus*, **Hertzler**.—Pigmentation of *Bufo bufo*, **Meng**.—Colour variation in *Bombina bombina* and *B. variegata*, **Michalowski**.—Skin colour parallelism in plethodontid salamanders, **Reynolds**.

**Digestion.**—Fluid and electrolyte movement across the intestinal wall of *Rana catesbiana*, **Chalfin, Cooperstein & Hogben**.—Water flow through frog gastric mucosa, **Durbin, Frank & Solomon**.—Gastric acid secretion and chloride transport in frog, **Durbin & Heinz**.—Experiments on chloride transport across the stomach mucosal membrane, **Heinz & Durbin**.—Influence of low temperatures on the digestive rates of *Triturus spp.*, **Joly**.—Modifications of the motivity of the gastro-intestinal tract of the frog during the year, **Pora & Rejep**.

**Diseases.**—*Rana esculenta* infected by *Flavobacterium hydrophilum* causing "red leg", **Dubedout**.—Tumours induced in *Triturus cristatus* by implantation of methyl cholaztrene, **Leone**.—The origin, structure,

function and its manifestations in disease of the vertebrate visual system, **Polyak**.—Interphase nuclei in normal and tumorous cells of fishes, amphibians and reptiles, **Stolk**, (1).—Development of the multiple fibroma of the adepidermal reticular network in the skin of the newt *Triturus taeniatus*, **Stolk** (2).—Species specific fibromas in the skin of *Triturus taeniatus*, **Stolk** (3).—9, 10, dimethyl-1, and 2-benzanthrazene as cancer causing substances, **Tokin & Filatova**.

**Effect of Chemicals and Temperatures**.—Comparative effects of phosphorylated nucleosides on amphibian morphogenesis, **Ambellan**.—The relative stability of the guanophore contracting agent under various treatments, **Bagnara** (1).—Thermal stadia in the development of *Rana temporaria* from South West Poland, **Bebak**.—Production of sterile female triploids by refrigeration of pleurodele eggs, **Beetschen** (3).—Temperature effect on the electrocardiogram of *Xenopus*, **Biörck & Johansson**.—HCG, FSH, LH, and LTH injections and their effect on testes and thumbpads of frogs **Burgos & Ladman**.—Action of deoxyribonuclease on lampbrush chromosomes, **Callan & Macgregor**.—Action of a thermal gradient on the embryonic development of *Triturus alpestris*, **Cury & Dollander**.—Contamination of the diphenylamine reaction for deoxyribonucleic acid in *Rana pipiens* eggs, **Finamore**.—Role of the corium in ion transport across isolated frog skins, **Fleming**.—Influence of temperature on the development of *Xenopus laevis*, **Gerbes**.—Effect of insecticide dust on *Rana esculenta*, **Gianotti**.—Sulphonylurea compounds as hypoglycemic agents in frogs, **Gourley**.—Influence of methylthiourea on the haematology of Anura, **Grabie-Broda**.—Regional distribution of catalase activity in tails of fed and starving *Xenopus* larvae, **Hahn, H. P. van**.—K tracer in the form  $\text{KHCO}_3$  in tracing permeation and diffusion of ions in the sartorius muscle, **Harris**.—On dehydration, critical temperature, activity and reactions to light of *Eurycea lucifuga*, **Hutchison**.—Acetyl choline potentiation by noradrenaline in the neuromuscular facilitation of frog leg muscle, **Hutter & Loewenstein**.—Eserine-acetylcholine interaction in frog muscle, **Jenden**.—Effect of tenfold increase of  $\text{Ca}^{++}$  in sartorius muscle fibres of frog, **Jenerick**.—Effect of temperature on the series elastic compound of muscle, **Jewell & Wilkie**.—Influence of low temperatures on digestion in *Triturus* spp., **Joly**.—Influence of temperature on the respiratory quotient of *Rana esculenta* skin, **Locker**.—Temperature influence on relation of liver tissue respiration to glycogen content in *Rana esculenta*, **Locker & Doneff**.—Ca and Na effect on heart contractions of frog, **Lüttgau & Niedergerke**.—Action of steroids on the active transport of sodium in frog skin, **Maetz, Jard & Morel**.—Temperature adaptation of cell enzymes in *Rana temporaria*, **Mews**.—Change in chemical structure of thyroxine analogues and their effect on *Rana pipiens* metamorphosis, **Morey, Meltzer, Young & Rawson**.—Influence of temperature on pulse rate of *Xenopus* and *Rana*, **Morawska & Zaleska**.—Influence of temperature in altering the augmenting effect of sodium azide on the energy rich phosphate content of toad embryos (*Bufo bufo* formosus), **Moriwaki**.—Temperature selection by larvae of *Salientia*, **Bühmekorf** (2).—Influence of temperature on breeding displays in newts, **Sculthorpe**.—Effect of narcosis and temperature on frog nerve action potentials, **Sjodin & Mullins**.—Temperature shock before fertilisation inducing triploidy later in *Xenopus laevis*, **Smith, S.**—Influence of temperature

on the threshold of medullated nerve fibres, **Stieve**.—Chemical enhancement of radio resistance in urodele larvae, **Stinson**.—Effect of temperature on the neuromuscular junction of frog, **Takeuchi, N.**—Cancer causing substances of a chemical, physical and biological nature, **Tokin & Filatova**.—Role of intracellular phosphate ions on contraction and coagulum formation in frog muscle fibre, **Umezawa**.—Progressive shift of the regional effect by heat treatment of bone marrow of *Triturus*, **Yamada**.—Effect of light on retinal enzyme activity, **Yoshida** (1).

**Excretion**.—Influence of diuretic hormones on *Bufo arenarum*, **Becerra**.—Experiment to show that the different regions of the primary ureter blastema possess at first the same morphogenetic potentialities, **Cambar & Gipouloux**.—Histochemistry of various parts of the kidney tubules and ureters of *Rana*, **Geyer, G.**—Electrical potential measurements on single nephrons of *Necturus*, **Giebisch**.—Role of thyroid in kidney development of *Rana sylvatica* tadpoles, development and degeneration of pronephros, **Hurley**.—Active sodium transport by the isolated toad bladder, **Leaf, Anderson & Page**.—Endotoxins in frog renal portal system and release of epinephrine, **Nagler & Zweifach**.—Seasonal variations in the effects produced by antidiuretics on *Bufo arenarum*, **Uranga**.

**Experimental Studies**.—Action of drugs on the potential in frog skin, **Aguggini & Noseda**.—Sperm elimination and hormonal injections in *Bufo arenarum*, **Allende & Astrada**.—Effects of sodium, potassium and azide on the ionic movements accompanying frog nervous activity, **Asano & Hurlbut**.—Gonadal responses of *Triturus pyrrhogaster* to methyltestosterone, **Asayama & Matsuzaki**.—Effect of estrogens on larval gonads of *Hynobius*, **Asayama & Miyamori**.—Effects of inhibitory solutions on sperm production in the toad, **Astrada & Taliesnik**.—The effect of guanophore contracting hormones on individual guanophores, **Bagnara** (1).—Precocious accumulation of glycogen in larval Pleurodele livers cultured in glucose, **Bellec** (2).—Sodium loss through the skin in *Bufo* after vasopressin injections, **Bentley** (1).—Effect of pituitrin on water transport in isolated *Bufo* bladder, **Bentley** (2).—Movement of sodium across the skin of the dehydrated *Bufo marinus*, **Bentley** (3).—Effect of acetylcholinesterase on the surviving frog heart, **Benák**.—Effect of penicillin on the metamorphosis of *Bufo melanostictus*, **Bhattacharya & Medda**.—Inactivation of newt larvae temporarily by benzimidazole and its alkyl derivatives, **Billet** (2).—The effect of acetylcholine in the absence of potassium on the myocardium of *Rana temporaria*, **Borghgraef & Carmeliet**.—Action of DCG on the active transport of sodium under the isolated skin of the frog: influence of calcium, **Bourquet**.—Effect of  $\beta$ -mercaptopethanol on morphogenesis in amphibian eggs, **Brachet**.—Effect on frog's electroretinogram of varying the amount of retina illuminated, **Brindley** (2).—Retinal responses to light in excised eye of *Rana temporaria*, **Brindley** (3).—Action of LH and FSH on spermiogenesis in *Bufo arenarum*, **Burgos & Houssay**.—Effects of gonadotrophins on testes and thumb pads of normal and hypophysectomized *Rana pipiens*, **Burgos & Ladman**.—Effect of injections of benzopyrene into *Triturus cristatus*, **Capuani** (2).—Effects of benzopyrene injections on *Triturus cristatus*, **Capuani** (1).—Effects of asphyxiation and lack of oxygen on frog liver glycogen, **Cordier, Duveau & Brandon**.—Influence of drugs on water inhibition and ion loss by frog gastrocnemius,

- Eckhardt & Govier.**—Effect of heat shock treatment of eggs of *Triturus palmatus*, *T. vulgaris*, on chromosome number of resulting embryos, **Fischberg.**—Curarizing effect of neomycin and its fractions in the frog, **Fulchiero, Turcotte & Martin.**—Hypophysectomized efts treated with hormones and study of produced water drive, **Grant & Grant.**—Action of caffeine on the brain component of motor synaptic potentials, **Gualtierotti (1).**—Action of caffeine injections on the spinal reflexes of frog, **Gualtierotti (2).**—Effect of thyroxine on *Triturus* limb regeneration, **Hay (1).**—Metabolic energy for chloride transport in the gastric mucosa of *Rana pipiens*, **Heinz & Durbin.**—Effect on oxygen consumption by isolated frog skin of temperature, **Huf & Doss.**—Effects of metabolic inhibitors and drugs on NaCl transport and O<sub>2</sub> consumption in the skin, **Huf, Doss & Wills.**—Suppression of growth in limb areas of *Xenopus* larvae by treatment with Nitrogen Mustard, **Hughes & Tschumi.**—Effect of azide and chlorotone on sodium and potassium contents of frog sciatics, **Hurlbut.**—Enzymatic hydrolysis of propionylcholine, acetylthiocholine and butyrylthiocholine by extracts of frog rectus abdominis, **Jacob & Péco-Dechavassine.**—Prepotential, resting potential and latent period relations in frog muscles, **Jenerick.**—Stress-strain and force-velocity experiments on striated muscle, **Jewell & Wilkie.**—Effect of synthetic lysine-vasopressin on adenylyl-physical activity in *Bufo bufo*, **Jørgensen & Nielsen.**—Micro-electrode study of cerebellar electrical activity, **Joynt.**—Effect of alkaline and alkaline-earth solutions on the pulmonary circulation of the frog, **Jullien, Cardot & Moulin.**—Ligaturing the pulmocutaneous trunks and branches and the survival of the frog and possibility of recommencing the circulation, **Jullien, Ripplinger, Cardot, Baylé & Tisserand.**—Toxicity of various chemical solution on larvae *Triton alpestris* hearts, **Jullien, Ripplinger, Cardot & Marcot.**—Atropine vasodilation in experiments on frog pulmonary circulation, **Jullien, Ripplinger, Cardot & Moulin.**—Effect on circulation of introducing alkaline solutions to the pulmonary cavity, **Jullien, Ripplinger, Cardot, Moulin & Thomas.**—Various tissue explants to determine blastopore lip potencies in *Triturus gastrulae*, **Kato (3).**—Application of the indirect peroxidase reaction to tissue staining, **Kawasaki.**—Uptake and turnover of injected I<sup>131</sup> in tadpoles of *Rana clamitans*, **Kaye & Le Bourhis.**—Combined effect of methyl testosterone and ovariectomy on crest production in female newts, **Kiortsis (1).**—Enzyme inhibitors on resting potential and ion distribution of the sartorius muscle of *Rana pipiens*, **Kloot.**—Effect of desoxy-corticosterone acetate on thyroxine induced metamorphosis of *Anura*, **Kobayashi.**—Stimulation of spinal ganglion cells in sodium-free media, **Koketsu, Ceri & Nishi.**—Influence of calcium chloride on muscle of frog, **Krolenko (1).**—Afferent fatigue and habituation in *Bufo bufo* due to constant skin stimulations, **Kuczka.**—Changes in the neurosecretory and neuroglial cells of fresh frog brains when ultracentrifuged, **Kumamoto.**—Active sodium transport by the isolated toad bladder, **Leaf, Anderson & Page.**—Disappearance from the skin glands of 5-hydroxytryptamine after injections of reserpine, **Liébecq-Hutter & Baq.**—Effect of HCG on expulsion of spermatozoa in ♂ *Bufo viridis*, **Lunenfeld, Rabau, H-Steinberg & Szejnberg.**—Action of aldosterones on the active transport of sodium in frog skin, **Maetz, Jard & Morel.**—Implantation of embryonic and tadpole tissues into adult frog limbs, **Malinin & Deck.**—Metabolic effect of cortisone acetate during limb regeneration in *Triturus v. viridescens*, **Manner.**—Effect of lesions of the middle eminence on *Triturus cristatus carnifex*, **Massi.**—Drug sensitivity of the isolated toad heart during hibernation, **Naylor.**—Lability and accommodation in frog nerve under various chemical stimuli, **Nikolsky.**—Prolactin and somatotrophin on forelimb regeneration in *Triturus alpestris*, **Niwelinski.**—Modifications in skeletal muscle activity of salamanders caused by convulsant and anticonvulsant drugs, **Peters et al.**—Total and partial sympathectomy in *Rana pipiens*, **Pick.**—Thymus extract effect on gastrocnemius of female frogs, **Pora & Toma.**—Induction of ovulation in frogs using mammalian hormones, **Ramaswami & Lakshman.**—Experiments on ATP inhibition of ovulation in *Rana pipiens*, **Rondell & Wright.**—Action of tetraiododesaminothyronine on metamorphosis of *Rana temporaria* tadpoles, **Both (1).**—Experiments on haploid amphibians, **Ruhland.**—Variations observed in the action of adrenaline on the deposition of glycogen in frog and pigeon muscles, **Sarzana & Castro.**—Effect of colcemid and TEM on the differentiation of the lens of embryonic *Triton alpestris*, **Schenk & Töndury.**—General observations on thyroidectomized newts, **Schmidt A. J.**—Comparison of effects caused by phenol and other spindle poisons on segmentation in amphibian eggs, **Sentain.**—Effect on chemical relationships within muscle of altering the external NaCl and KCl levels, **Simon, Shaw, Bennett & Muller.**—Action potentials of frog nerve and stimulation frequency affect, **Sjodin & Mullins.**—Metabolic studies on isolated epithelium of frog skin, **Skjelkvale, Nieder & Huf.**—Relation between liver weight and degree of restoration after partial hepatectomy in *Rana pipiens*, **Streett.**—Colchicine on early frog development, **Su & Tsai.**—Effect of boric acid on the development of eggs of *Bufo vulgaris formosus*, **Takeuchi, T.**—Antagonism in the action of calcium and strontium on the frog heart, **Thomas.**—Effect of extracellular potassium on intracellular action current in the heart of the intact toad, **Trethewie & St. Clair.**—Electromotive force set-up by *Rana temporaria* tadpoles in opposition to an electrical stimulus, **Viaud & Dreyfus.**—Effects of cytotoxic substances on amphibian embryos, **Waddington.**—Effect of Pitressin on water exchange and lymph drainage in the frog, **Wilson & Archdeacon.**—Influence of steroids on sex differentiation in *Pseudacris*, **Witschi, Foote & Chang.**—The effect of sulphydryl reagents on oxygen treated embryos of *Rana pipiens*, **Wittner & Rosenbaum.**—Effect of various concentrations of acetone on the acetylcholine contracture of the rectus abdominis muscle, **Zelený & Kozák.**
- Hormones.**—Gonadotrophins and sperm elimination in *Bufo arenarum*, **Allende & Astrada.**—Sensitivity of *Bufo bufo* to chorionic gonadotrophin, **Allison.**—Responses of *Hynobius* larval gonads to estrogens, **Asayama & Miyamori.**—Effect of chromatotropic hormone on anuran pigmentation, **Bagnara & Neidelman.**—Diuretic hormones and their action on *Bufo arenarum*, **Becerra.**—Supporting role of cortisone and ACTH in hormonal control of ovulation, **Chang & Witschi.**—Comparative effects of goitrogens on thyroid activity in *Triturus* and *Desmognathus*, **Dent & Lynn.**—Effect of follicular hormone on sex differentiation in *Hynobius retardatus*, **Hanaoka (1).**—Effect of testosterone-propionate on sex-differentiation in *Hynobius retardatus*, **Hanaoka (2).**—Influence of gonadal hormones on the differentiation of the gonad in *Rhacophorus schlegelii*, **Iwasawa (1).**—Relation of

melanophore-expanding hormone to hyperglycaemia in *Xenopus laevis*, **Munday**.—Action of sex hormones on the motivity of the gut of *Rana* during the year, **Pora & Rejep**.—Role of mammalian hormones in inducing ovulation in frogs, **Ramaswami & Lakshman**.—Induced ovulation by hormonal treatment in *Rana temporaria* and *R. pipiens*, **Taurand**.—Concentrations of thyroxene and iodine in frog ovaries, **Volpent, Michel & Roche**.

**Laboratory Technique**.—Staining technique with thionin blue and Ag. impregnation of *Rana* dendrites, **Cerf & Chacko**.—Methods of applying electrical stimulation to lateralis organs of *Xenopus laevis*, **Murray**.

**Locomotion: Movement**.—Coordination of swimming movements in *Ambystoma mexicanum* after central nervous system regeneration, **Romanovsky**.—Galvanotropism of *Rana temporaria* tadpoles, **Viaud & Dreyfus**.

**Muscular activity**.—Myocardium of *Rana temporaria* in the absence of potassium and under the influence of acetylcholine, **Borghgraef & Carmeliet**.—Distribution of inorganic phosphate in *Bufo marinus* muscle, **Briner, Simon & Shaw**.—Longitudinal field, coupled with depolarization in activating frog twitch muscles, **Csapo & Szunzi**.—Chlorpromazine blockage of water imbibition by frog gastrocnemius, **Eckhardt & Govier**.—The effect of trematode infection on the physiological activity of the sartorius, **Frank**.—Frog muscle metabolism and structure of sulphonylurea compounds, **Gourley**.—Experiments upon the transmission of stimuli in cardiac musculature of *Triturus cristatus*, **Gyévali**.—Rehydration contraction of frozen dried muscle of *Rana pipiens*, **Hopkins**.—Neuromuscular facilitation by sympathetic stimulation of frog muscle, **Hutter & Loewenstein**.—Eserine-acetylcholine interaction in frog rectus abdominis, **Jenden**.—Latency dependent prepotential of depolarising fibres in sartorius muscle, **Jenerick**.—Dependence of the heart activity of the frog on a substance of nervous origin, **Julien, Ripplinger & Cardot**.—Enzyme inhibitors on resting potential and ion distribution of sartorius muscle of frog, **Kloot**.—Contractions of muscle fibre in frog, **Krolenko (2)**.—Diastole and systole in the ventricle muscles of the frog heart, **Lacquet**.—Electrical activity of salamander skeletal muscle and modifications by anti-convulsant and convulsant drugs, **Peters et al.**.—Mechanical action of the frog gastrocnemius, **Pora & Oros**.—Effect of thymus extract (CIF) on the gastrocnemius of female frogs, **Pora & Toma**.—Relationship between sodium, potassium and chloride in amphibian muscle, **Simon, Shaw, Bennett & Muller**.—Effect of temperature on frog sartorius neuromuscular junction, **Takeuchi, N.**.—Contraction and coagulum formation of isolated frog muscle fibre, **Umezawa**.—Effect of acetone on the tonic muscle of *Rana temporaria*, **Zelený & Kozák**.

**Nervous System**.—Observations on spinal ganglion cells of *Rana pipiens* in normal animals and after injection of malononitrile, **Anderson & Breemen**.—Effects of chemicals on ionic movements during nerve activity in *Rana pipiens*, **Asano & Hurlbut**.—Frog nervous physiology, **Burkhardt**.—Retrograde reaction in motoneuron dendrites, **Cerf & Chacko**.—Localisation of neural and lens antigens in frog embryos in relation to induction, **Flickinger**.—Neomycin and its effects on nerve blocking in frogs, **Fulchiero, Turcotte & Martin**.—Action potentials in dorsal and ventral

roots of the spinal cord, **Gualtierotti (1)**.—Changes in action potentials in sciatic nerves after injections of caffeine, **Gualtierotti (2)**.—Effect of drugs on sodium and potassium contents and respiration of frog sciatic, **Hurlbut**.—Sympathetic innervation of frog leg muscle, **Hutter & Loewenstein**.—The Schmidt-Lautermann incisure of the peripheral medullated nerve fibre, **Ishida**.—Cerebellar electrical activity in *Rana esculenta*, **Joynt**.—The role played by the spinal cord in the regeneration of the tail of larval salamanders, **Kiortsis & Droin**.—Electrical responses of *Rana pipiens* spinal ganglion cells in sodium-free media, **Koketsu, Cerf & Nishi**.—Effect of the augmented nerve supply on regeneration in postmetamorphic *Xenopus laevis*, **Konieczna, Marczynska & Skowron-Cendrak**.—Physiology of the nervous system in frog and rôle of nucleic acids, **Koshoyanis**.—Short term afferent fatigue, habituation, reflex actions and instinctive activities and their role in learning behaviour of *Bufo bufo*, **Kucaka**.—Distribution of sulphhydryl substances in the hypothalamus and neurohypophysis of the toad, **Lasansky & Sabatini**.—Secondary cerebral modifications of the paraphysis of *Rana esculenta*, **Legait & Legait**.—Depolarization in frog's heart during "KCl contractions", **Lüttgau & Niedergerke**.—*Bufo bufo* efferent fibres in the optic nerve and their behaviour after section of the nerve, **Maturana**.—Change of constants a and b in Hoorweg-Weiss formula at the action of substances on frog nerve, **Nikolsky**.—Histochemical study of cholinesterase at neuromuscular junctions of the abdominal musculature of the frog, **Pecot-Dechavassine**.—Retinal sensitivity in *Rana esculenta*, **Pilz, Sichel & Birke**.—Action of the nervous system on the mechanical action of the frog gastrocnemius, **Pora & Oros**.—Central nervous system regeneration in embryos of *Ambystoma mexicanum*, **Romanovsky**.—Quantitative analysis for RNA and protein nitrogen before and after induction of the neural tube, **Rounds & Flickinger**.—Neural closure in amphibia and the forces concerned, **Selman (1)**.—Action potentials of frog nerves, **Sjodin & Mullins**.—Threshold dependence of action potentials in medullated nerve fibres, **Stieve**.—Conduction velocity in intracutaneous nerve fibres of frog, **Takagi**.—Depression in frog neuro-muscular transmission, **Takeuchi, A.**.—Effect of temperature on frog neuromuscular junction, **Takeuchi, N.**.—Extra cellular potassium effect on intracellular action current of intact toad heart, **Trethewie & St. Clair**.—Attempts to determine origins of sympathetic ganglia, neurilemma sheath cells, and spinal meninges, **Triplett**.—The hypothalamic neurosecretory system of *Hyla regilla*, in normal animals and after transection of the infundibular stalk, **Wilson, Weinberg & Bern**.—Temporal reflexes associated with spinal reflexes in frogs, **Wittenberger & Fabian**.—Spina bifida developed at the neural stage in *Bufo vulgaris formosus* by treatment with potassium oxalate, **Yamamoto**.

**Osmotic relations: Water balance**.—Dehydration and hydration and ability to withstand desiccation in frogs of the genera *Neobatrachus* and *Heleioporus*, **Bentley, P. J. et al.**.—Effect of vasopressin on water uptake in *Bufo* in different hypotonic solutions, **Bentley (1)**.—Effect of pituitrin on water transfer across the wall of the isolated urinary bladder of *Bufo*, **Bentley (2)**.—Water flow through the gastric mucosae of *Rana pipiens* and *R. clamitans*, **Durbin, Frank & Solomon**.—Electromotive chloride transport in the frog, **Durbin & Heinz**.—Effect of trematode infection on frog's water balance mechanism, **Frank**.—Action of

pitressine and adrenalin on water balance of *Bufo paracnemis* during and after metamorphosis, **Hadler, Beresin & Lison**.—Destruction of osmo-regulatory functions in organs of *Diemictylus viridescens* after X irradiation, **Jakowska et al.**—Tolerance of water loss by salamanders, **Ray**.—Postures of frogs during water absorption, **Stille**.—Effects of fresh water and marine teleost pituitary on water balance in *Rana pipiens*, **Weisel**.—Fluid drainage and the effect of pitressin from the frog dorsal lymph sac, **Wilson & Archdeacon**.

**Pregnancy test use.**—Melanophore dispersing substance in human pregnancy urine, **Burgers & Mighorst**.

**Respiration.**—Influence of various sound frequencies on respiratory movements, galvanic skin reflex and gastric hunger movements in *Rana, Kleerekoper, & Sibabin*.—Blood oxygen capacity in frogs, **Leftwich**.—Respiratory quotient and aerobic glycolysis of *Rana esculenta* skin under varying temperatures, **Locker, A.**—Cytochrome-c-oxidase and respiratory rate in larval *Bufo bufo*, **Petrucchi**.—Regulation of cutaneous respiration in frogs, **Poczopko, P.**—Increase in respiratory activity during the early development of *Siredon mexicanum*, **Rudnick**.—Method for stabilizing O<sub>2</sub> consumption values in frogs, **Springmuller & Concha**.

**Secretion: external.**—Investigations on mucilage secretion, **Schulz & Paola**.—Changes in epidermal glands after removal of the pituitary of clawed toads, **Spannhof**.

**Secretion: internal.**—Total catheptic activity of embryos of *Xenopus laevis* and its role in development, **Deuchar**.—Effect of ultracentrifugation on the hypothalamic neurosecretory system of fresh frog brains, **Kumamoto**.—Thyroid activity in relation to cytodifferentiation of anterior pituitary of *Xenopus*, **Saxén**.—The hypothalamic neurosecretory system of *Hyla regilla*, **Wilson, Weinberg & Bern**.

**Senses.**—*Rana temporaria* passive electrical properties of retina, choroid and sclera for radial fields and currents, **Brindley (1)**.—Effect on frog's electroretinogram of varying the amount of retina illuminated, **Brindley (2)**.—Retinal responses to light in exised eye of *Rana temporaria*, **Brindley (3)**.—Reaction to light in frog, **Brodsky & Nechaeva**.—Visual pigments of Amphibia, **Crescitelli**.—Visual mechanism and sensitivity in *Xenopus laevis*, **Dartnall**.—Average light absorption and density photo sensitivity of retinal receptors, **Denton & Wyllie**.—The representation of the retina on the optic lobe of frog, **Gaze**.—Reactions caused by stimulation of the horizontal semi-circular canal in *Rana viridis*, **Gribenski**.—Yawning behaviour of *Bufo calamita* in relation to tracking prey by sense of smell, **Housser (3)**.—Capacity of the lens forming tissue in amphibia, **Kankave**.—Wiping movements, fatigue and habituation after skin stimulation in *Bufo bufo*, **Kuczka**.—Response of lateralis organs of *Xenopus laevis* to electrical stimulation by direct current, **Murray**.—Sensitivity of the retina studied by means of an electro retinograph, **Pilz, Sieckel & Birke**.—Acetyl choline hydrolyzing enzyme in the receptor cell of frog retina, **Yoshida (1)**.

**Transplants, Implants, Grafts: Regeneration Studies.**—Grafting experiments on brain size and eyes in Anura, **Balinsky**.—Parabiosis experiments with metamorphosing and post metamorphosing newts, **Beetschen (1)**.—Regeneration from supernumerary blastemas in adult *Triturus viridescens*, **Bodemer**.—Transplanta-

tion experiments with *Triton cristatus* and *Rana esculenta*, **Bondi**.—Excision of the presumptive prosencephalic area of the neural plate of *Triturus alpestris*, **Boternbrood**.—Ultraviolet irradiation of upper arm of *Ambystoma opacum* and its effect on regeneration of the lower part, **Bulter, Blum & Schmidt**.—Experiment to demonstrate that initially all regions of the primary ureter blastema possess the same morphogenetic potentialities, **Cambar & Gipouloux**.—Inhibition of regeneration, morphogenesis of regenerates and regenerates on reversed hind limbs, **Deck & Riley**.—Muscular regeneration in newts under the influence of vitamins, **Degan & Asandei**.—Bilateral removal of trunk neural folds, transplanting from normal and abnormal hosts, **Finnegan**.—Parabiosis experiments on *Pleurodeles waltlii*, **Gallien (1)**.—Skeletal regeneration in amphibians, **Goss**.—Lower jaw regeneration of newts after excision of the intermandibular regions, **Goss & Stagg (1)**.—Regeneration of lower jaws in adult newts, **Goss & Stagg (2)**.—Sexually mature individuals of *Xenopus laevis* from the transplantation of single somatic nuclei, **Gurdon, Elsdale & Fischberg**.—Limb regeneration in *Triturus viridescens*, **Hay (1)**.—Fine structure of blastema cells and differentiating cartilage cells in regenerating limbs of *Ambystoma punctatum* larvae, **Hay (2)**.—Grafting in parabiosis larvae of *Ambystoma*, **Hughes & Tschumi**.—Pronephric regeneration in thiorousa treated tadpoles, **Hurley**.—Explants from the dorsal marginal zone of amphibian eggs, **Ikushima**.—Wound healing in an intact amphibian and in an isolated organ, **Ioff**.—Regeneration of the endbrain in post-metamorphic *Xenopus laevis*, **Jordan**.—Implantation of the nasal placode in the dorsal area of the forelimb organ district of urodele embryos, **Kiortsis (2)**.—The role of the spinal cord in the regeneration of the tail of larval *Salamandra salamandra*, **Kiortsis & Droin**.—Capacity of heteromorphic limb regeneration in postmetamorphic *Xenopus laevis*, **Konieczna-Marczynska & Skowron-Cendrzak**.—Olfactory nerves and endbrain regeneration in *Xenopus laevis*, **Kosciuszko**.—Orthotopic transplantation of presumptive lateral mesoderm of early *Triturus gastrulae*, **Kotani**.—Multiple regeneration of tadpole tails of *Xenopus laevis*, **Kucias**.—Limb regeneration experiments in *Alytes obstetricans*, **Lecamp**.—Implants of methylcholantrene crystals under the skin of *Triturus cristatus*, **Leone**.—Transplantation and trunk muscle development in Anura, **Liedke**.—Regeneration after amputation *Rana pipiens* and *R. clamitans*, **Malinin & Deck**.—Metabolic effect of cortisone acetate during limb regeneration in *Triturus v. viridescens*, **Manner**.—Regeneration after amputation of abnormal structures, **Newth (1)**.—Regeneration after the amputation of abnormal structures, **Newth (2)**.—Prolactin and somatotrophin on forelimb regeneration in *Triturus alpestris*, **Nowielinski**.—Asportation and successive orthotopic limb grafts in *Bufo vulgaris*, **Notarmicola**.—Regeneration of reversed polarity limb extremities in salamander larvae, **Oberheim & Luther**.—Regeneration of the intestine in adult urodeles, **O'Steen**.—Transplantation of somatic nuclei to normally fertilised and non-enucleated eggs of *Triturus alpestris*, **Pantelouris & Jacob**.—Limb grafts in relation to the development of the spinal cord and ganglia in Anura, **Perri (1)**.—Embryonic limb bud transplantations of *Bufo viridis* to *B. vulgaris*, **Perri (2)**.—Regeneration in the spinal cord of the adult frog, **Platt & Platt**.—Regeneration experiments with newt tails, **Preda & Persecá**.—In amphibia, **Raitzina**.—Homoplastic and heteroplastic grafts between *Ambystoma* donors and

*Triturus* hosts, **Reyer**.—Degree of regeneration of the nervous system of pre-neurula embryos of the axolotl, **Romanovsky**.—Larval incompatibility in grafting *Anura* and *Urodela*, **Rossi**.—Nerve dependency in implant-induced supernumary formation, **Ruben & Frothingham**.—Regeneration in athyroid newts, **Schmidt, A. J.**—Adrenal transplants and forelimb regeneration in frogs, **Schotté & Wilber**.—Transplants of neural fold material from three different zones in *Triturus alpestris*, **Seno & Nieuwkoop**.—Regeneration of amphibian body parts, **Singer**.—Regenerative potentialities of limb and tail cells of axolotls, **Skowron & Roguski**.—Implantation of pituitary tissue and its effect on the epidermal glands of hypophysectomized toads, **Spannhof**.—Preliminary grafting experiments with *Triton* and *Rana esculenta*, **Spirito & Bondi**.—Radio resistance in regenerating and developing limbs of urodele larvae, **Stinson**.—Transplantation experiments with skin fibromas of tumour bearing *Triturus taeniatus*, **Stolk** (3).—Retina influence on lens regeneration, **Stone**.—Lens regeneration and retinal factor in *Triturus viridescens*, **Stone & Gallagher**.—Transplantability of haploid nuclei, **Subtelny**.—Regeneration of inhibited limb stumps after release from irradiation, **Thornton**.—Weakening of regenerative ability of tissues by cancer causing substances, **Tokin & Filatova**.—Grafts of embryonic nervous material to determine origins of sympathetic ganglia, **Triplett**.—Effect of antiserum on inductive capacity of *Triturus vulgaris*, **Vainio**.—Ear vesicle grafted in various abnormal regions of *Amblystoma*, **Van Dyke & Detwiler**.

**Venoms**.—Venoms secreted by parotid glands in *Bufo* spp., **Frèrejacque**.

**X-rays etc.**—Ionizing irradiation (X-rays and gamma rays) of amphibian tissues, **Allen**.—Effects of irradiation on parts of *Siredon mexicanum* heads, **Brunst**.—Comparison of the effect of ultra violet light and X-rays on the capillaries of the frog's web, **Bücker & Hanke**.—Ultraviolet irradiation of upper arm of *Amblystoma opacum* and its effect on regeneration of the lower part, **Butler, Blum & Schmidt**.—Diminution in dipeptidase activity by X-rays, **Coromaldi** (1).—Geiger counter assay of radioactivity of K-tracer in sartorii of *Rana*, **Harris**.—Hematological and histological effects of whole body X-irradiation, **Jakowska et al.**—Amputation and despinalisation of the tail of *S. salamandra* and the reincorporation of irradiated hind limbs, **Kiortsis & Droin**.—Autoradiographic study on iodine accumulation in pigmented tissues of amphibian larvae, **Koshida** (1).—Autoradiography of the skin of *Rhacophorus* larvae, **Koshida** (2).—Teratological effect of ultra-violet rays on larval amphibia, **Rostand** (2).—Ultra-violet light method of producing haploid amphibian embryos, **Selman** (2).—Histological cells changes induced by X-rays, in tadpoles, **Speidel**.—X-irradiation of larval urodeles, **Stinson**.—Autoradiography to show differences in uptake of a tracer  $^{14}\text{CO}_2$  in early Axolotl gastrulae, **Tencer**.—Effects of ultra-violet light irradiation on limb regeneration of larval urodeles, **Thornton**.

## REPRODUCTION AND SEX

**Experimental**.—Modification of *Hynobius* sex development by methyl-testosterone, **Asayama & Amanuma**.—Responses of larval gonads to estrogens, **Asayama & Myiamori**.—Inhibition of sperm production by saline and hypophyseal solution in the toad, **Astrada & Taleisnik**.—Maintenance of frog larvae

gonads on synthetic media, **Footo & Footo** (2).—Abnormal gonadal differentiation due to hormonal injections in *Rhacophorus* tadpoles, **Iwasawa** (1).—Histology of Bidder's organ in *Bufo arenarum* after castration and after the action of sex hormones, **Penhos & Cardeza**.—Extra gonadal influence on the gonad of *Triturus alpestris*, **Stärk** (2).

**Hybridisation**.—Discussion of isolating mechanisms between *Bufo terrestris-woodhousei* group and *B.valliceps* and within the *B. terrestris-woodhousei* complex, **Gosmer & Black** (3).—Distinct hybrids produced, with special regard to cell and nuclear detail, among three European toads, **Hertweig, Weiss & Ziemann**.—Transference of haploid nuclei between *Rana pipiens* and *R. sylvatica*, **Moore** (3).—Interspecific gene exchange between *B. fowleri* and *B. terrestris* in S.E. Louisiana, **Volpe**.—*Scaphiopus h. hurteri* × *S. h. holbrookii*, skull figured p. 314, **Wasserman**.

**Intersex**.—In adult *Pelobates punctatus* after treating larvae with oestradiol, **Gallien & Colletot**.

**Reproduction**.—Response by ♀ *Hyla cinerea* to call from ♂, **Blair** (2).—Studies on the grassfrog, **Bechtie**.—Of *Bufo r. regularis*; study of oviposition, **Chapman & Chapman**.—Reproductive behaviour and breeding pattern of *Scaphiopus holbrookii*, **Hansen**.—Of *Rhacophorus c. cruciger*, **Morgan-Davies** (1).

**Secondary Sex Characters**.—The vocal sac of *Bufo alvarius*, **Inger** (1).—Thumb-pads in normal and hypophysectomized frogs after gonadotrophin injections, **Burgos & Ladman**.

**Sex Determination**.—Modifications in the sexual characters of male *Bufo arenarum* after castration, **Penhos & Cardeza**.

**Sex Differentiation**.—In *Rana esculenta* and *R. dalmatina*, **Ancona**.—Modification of sex differentiation by steroids in *Pseudacris*, **Witschi, Footo & Chang**.—Effect of follicular hormone on sex differentiation in *Hynobius retardatus*, **Hanaoka** (1).—Effect of testosterone-propionate on sex differentiation in *Hynobius retardatus*, **Hanaoka** (2).

**Sex Dimorphism**.—Dimorphic maxillary dentition in *Pseudacris*, **Goin, C. J.** (2).—In *Rana albolabris*, **Guibé & Lamotte** (4).

**Sex Maturation**.—In vitro cultivation of larval anuran gonads, **Footo & Footo** (3).—Single somatic nuclei of *Xenopus laevis* producing sexually mature individuals, **Gurdon, Elsdale & Fischberg**.

**Sex Reversal**.—Feminization of the gonad differentiation in male salamanders, **Asayama & Matsuzaki**.—Sex reversal in male *Pelobates cultripes* with oestradiol, **Gallien & Colletot**.—Sex reversal in thiourea-treated frog tadpoles, **Iwasawa** (2).

## DEVELOPMENT

**Egg: Oogenesis**.—Inducted oviposition and incubation of eggs of *Batrachoseps*, **Anderson**.—Water absorption by *Hynobius* eggs, **Aoki**.—Control of development and differentiation of cells in *Rana pipiens* gastrulae, **Barth & Barth**.—Anuran germ cells studied in the blastocoel floor, **Blackler**.—Eggs of *Plethodon g. glutinosus*, **Brode & Gunter**.—Basic requirements for egg laying in salamanders, **Carl**.—Cortisone effect on frog ovulation, **Chang & Witschi**.—

**Streptomycin activity on eggs of *Bufo vulgaris*, Chiurini.**—*Triturus alpestris* cortical permeability gradient, **Dollander.**—Chemical analysis of nucleic acid content of nuclei in *Rana* ova, **England & Mayer.**—Artificial insemination of newt eggs, **Fischberg.**—Glycogen content of *Rana pipiens* eggs at different stages of development, **Fitch & Merrick.**—Biological observations on *Leptodactylus prognathus*, **Gallardo** (2).—Development and description of eggs of *Pseudacris trimleyi* **Gosner & Black** (1).—Direct development of *Arthroleptis cruscum*, **Guibé & Lamotte** (2).—Evolution of nucleoli in batrachian oocytes, **Guyénot.**—Experimental doubling of triploid nuclei in toad hybrids removed from the ovary, **Hertwig, Ruhland & Weiss.**—Kinetic and histogenetic phenomena in the marginal zone of amphibian eggs, **Ikushima.**—Crystalline lattice structure of yolk platelets in embryonic *Triturus pyrrhogaster*, **Karasaki & Komoda.**—Blastopore potencies of *Triturus gastrulae*, **Kato** (3).—Formation of primordial germ cells from *Triturus* presumptive ectoderm, **Kotani.**—Electron microscope study of lampbrush chromosomes from amphibian oocytes, **Lafontaines & Ris.**—Hypothetical assumption of dorso-ventral polarity giving higher oxidative rates at certain parts of amphibian eggs, **Løvtrup.**—Effect of oxygen poisoning on gastrulation in *Rana pipiens* eggs, **Malamed** (2).—Eggs and larvae of *Eurycea lucifuga* described, **Myers** (1).—Lipid bodies in the oocytes of *Rana tigrina*, **Nath, Gupta & Kaur.**—Cortical changes at fertilization of toad eggs, **Osanni.**—Protein synthesis in oocytes of *Triturus palmatus* and *T. alpestris*, **Pantelouris.**—Influence of pH on ovulatory capacity, inhibitors during incubation and the ovulatory period, and of smooth muscle activity, **Rondell & Wright.**—Nature and distribution of polysaccharide protein complexes in the cortex of developing *Rana pipiens* oocytes, **Rosenbaum.**—Influence of factors on haploid or diploid egg production, **Ruhland.**—Changes in the achromatic apparatus, nucleus and chromosomes of *Triturus* and *Pleurodeles* after treatment with phenol, **Sentein.**—Cleavage in the newt egg, **Swann & Mitchison.**—Effects of boric acid on egg development in *Bufo vulgaris formosus*, **Takeuchi, T.**—Heterogeneity of nucleoli in oocytes of *Bufo arenarum*, **Tandler.**—Ovulation in *Rana pipiens* and *R. temporaria*, **Taurand.**—Concentrations of thyroxene and iodine in the ovary of *Rana temporaria*, **Volpert, Michel & Roche.**—Orientated section of *Rana gastrula*, **Wessing & Claes.**—Artificial culture mediums for *Alytes obstetricans* eggs, **Wettstein.**—Resistance and susceptibility to high oxygen pressures in the early stages of *Rana pipiens* development, **Wittner & Rosenbaum.**

**Sperm: Spermatogenesis.**—Cytological events in the spermatogenic cycle and the deposition of glycogen in sertoli cells, **Burgos & Ladman.**—Comparative nucleic acid content of spermatozoa of the frog, **England & Mayer.**—Discharge of sperm after injections of HCG, **Lunenfeld, Rabau, H-Steinberg & Szejnberg.**—Action of gonadotrophins on sperm production in *Bufo arenarum* males, **Moisset de Espanés.**—Regulation by temperature of the spermatogenic cycle in *Rana temporaria*, **Oordt.**—Spermatophore of *Plethodon jordani metacalfi*. **Organ.**

**Effects of Environment.**—Dependence of spawning on external factors in Salientia, **Rühmekorf** (1).—Cold temperature and delayed metamorphosis produces accessory limbs in frogs developing in natural conditions, **Voitkevich** (2).

**Electrophoresis.**—Changes of the Electrophoretic serum pattern of *Ambystoma* according to age, sex and metamorphosis, **Manelli** (2).

**Embryology.**—Amphibian morphogenesis, in particular *Rana pipiens*, and the effect of phosphorylated nucleosides, **Ambellan.**—Ammonia-, urea-, and iron-contents in the perivitelline fluid of *Rhacophorus schlegelii* var *arborea*, **Arima.**—Comparative embryology of vertebrates, **Baer.**—Thermal stadia in the development of *Rana temporaria*, **Bebak.**—Correlation between lenticular and total development in embryonic *Triturus*, **Becker.**—Cytological study of heteroploid embryos of *Pleurodeles waltlii*, **Beetschen** (2).—Of *Bufo terrestris charlesmithi*, *B. t. terrestris*, *B. t. americanus*, **Bragg** (2).—Development of *Eupsophus taeniatus*, **Capurro**, (2).—Development of *Eupsophus taeniatus*, **Cei & Capurro.**—Development of *Chironomantis petersi kelleri*, **Cherchi** (2).—Activity of streptomycin on the development and differentiation of eggs and larvae of *Bufo vulgaris*, **Chiurini.**—Action of the thermal gradient on embryonic development of *Triturus alpestris*, **Cury & Dollander.**—Spleen development and experimental modification in *Taricha torosa*, **DeLanney.**—Discussion of possible assistance in yolk breakdown derived from catheptic activity in *Xenopus laevis*, **Deuchar.**—Development of collagen in *Rana pipiens* embryos, **Edds.**—Behaviour of Rohon-Beard cells during embryonic and larval development, **Filippio.**—Embryonic induction in *Rana pipiens* and antigen localisation, **Flickinger.**—Relation of natural and imposed electrical potentials and respiratory gradients to morphogenesis, **Flickinger & Blount.**—Influence of temperature on the development of *Xenopus laevis*, **Gerbes.**—Introduction of a barrier between dorsal and ventral regions of *Xenopus* embryos and limb field effects, **Hughes & Tschumi.**—Oxygen consumption of *Ambystoma maculatum* embryos developing in an envelope inhabited by *Oophila amblystomatia*, numerous protozoa, and bacteria, **Hutchinson & Hammen.**—Differentiation of the cortical cytoplasm and inclusions in oocytes of frog, **Kemp.**—Development of a dorsal crest by female newts under varying conditions, **Kjortsis** (1).—Development of the ovary in virgin female *Nectophrynoides*, **Lamotte & Rey.**—Utilization of lipids by embryonic *Bufo vulgaris*, **Lernia, E. D.**—Anuran trunk muscle development, **Liedke.**—Physiological interpretation of the mechanism of determination of bilaterality in Amphibian embryos, **Løvtrup.**—Inversion of the dorso-ventral axis in *Siredon mexicanum*, **Løvtrup & Pigon.**—Qualitative changes at gastrulation, initiation of a new development dependent chemical system, **Malamed** (2).—Origin and development of the pronephros and Wolffian duct in *Rana*, **Manelli** (1).—Notes on *Ramanella obscura*, **Morgan-Davies** (2).—Energy-rich phosphate content of *Bufo vulgaris formosus* embryos temperature alterations, **Moriwaki.**—Increased partial pressure of O<sub>2</sub> accelerates development in *Rana* embryos, **Nelsen.**—Factors influencing the control of limb development in *Ambystoma punctatum*, **Nicholas.**—Developmental capacities of the cell nuclei of various tissues of the newt, **Pantelouris & Jacob.**—Intrinsic and extrinsic factors in the development of the spinal cord and ganglia in Anura, **Perri** (1).—Lens induction from prospective belly ectoderm of *Ambystoma punctatum* and *Triturus viridescens*, **Reyer.**—Embryonic nutrition, **Rudnick.**—Forces producing neural closure in amphibia, **Selman**, (1).—Autonomous and dependent differentiation of the neural crest in *Triturus*

*alpestris*, **Seno & Nieuwkoop**.—Initiation of amphibian gastrulation experiments, **Shapiro**.—Double nucleus in early development of *Bufo bufo*, **Sirakami (1) & (2)**.—Induction of triploidy in *Xenopus laevis*, **Smith, S.**.—Development and variation of gonad and sex cells, **Stark (1)**.—Larval growth and development of experimental haploids and homozygous diploids, **Subtelny**.—Study of sympathetic ganglia, spinal meninges and neurilemma sheath cells to determine embryological origin, **Triplett**.—Early developmental studies on *Rana fusca*, **Veit**.—Amphibian embryos and cytotoxic substances, **Waddington**.—Induction fields in early embryonic stages of *Triton*, **Woellwarth**.—Induction of double embryos in *Bufo vulgaris formosus*, **Yamamoto**.—Histochemical study of salamander retina in late embryogenesis, **Yoshida (2)**.

**Embryology: Chemical**.—Chemical nature of *Rhacophorus* perivitelline fluid, **Arima**.— $\beta$ -glucuronidase activity during early development of *Xenopus laevis* embryos, **Billett (1)**.—Study of ribonucleic acid in embryonic *Bufo vulgaris*, **Coromaldi (2)**.—Lipid utilization by embryonic *Bufo vulgaris*, **Lernia**.—Streptomycin and chloromycetin inhibitors of *Rana* metamorphosis, **Marco**.—Cytochemical investigation of the cortical cytoplasm of developing *Rana pipiens* oocytes, **Rosenbaum**.—RNA and protein in neural induction in *Rana pipiens*, **Rounds & Flickinger**.—Role of yolk proteins in amphibian embryos, **Sampath Kumar et al.**.—Blocking of mitosis in early metaphase by Colcemid, and lens differentiation in larval *Triton alpestris*, **Schenk & Töndury**.—Effect of pH, and salinity on the response to blastocoel perfusion in *Ambystoma*, **Shapiro**.—Regional incorporation of  $^{14}\text{CO}_2$  into Amphibian gastrulae, **Tencer**.

**Embryology: experimental**.—Inducted oviposition and incubation of eggs of *Batrachoseps*, **Anderson**.—Methyl testo-sterone modification of sex development in larval *Hynobius*, **Asayama & Amamuna**.—Effect of enzymes on fertilizability of *Rana pipiens* eggs, **Barch & Shaver**.—Effect of penicillin, streptomycin and penicillium mycelium on growth and development of *Xenopus laevis*, **Ber & Zieleniewski**.—Temporary inactivation of newt larvae by benzimidazole and its alkyl derivatives, **Billett (2)**.—Inhibition of cell division in amphibian eggs by  $\beta$ -mercaptoethanol, **Brachet**.—Experiments on the diffusibility of the amphibian evocator, **Brahma**.—Constriction of newt blastulae and its effect, **Brice**.—Effect of re-turning eggs on the embryonic development of *Pleurodeles waltlii*, **Brouant & Cury**.—Effects on development of head structures caused by irradiation of young axolotls, **Brunst**.—Action of hormones on spermiogenesis in *Bufo arenarum*, **Burgos & Houssay**.—Injections of cortisone, estradiol and ACTH to jumbo *Rana pipiens* and their effect on ovulation, **Chang & Witschi**.—Streptomycin on differentiation of *Bufo vulgaris*, **Chiuni**.—Diminution of dipeptidase activity in young frogs by X-irradiation, **Coromaldi (1)**.—Early removal of the pronephros and its effect on the development of the female genital opening in *Rana dalmatina*, **Dechambe**.—Induced ovulation in *Necturus*, **Fitch, E. L.**.—Experimental induction of vertebrae in embryonic *Pleurodeles waltlii*, **Gallien (2)**.—Odd results after hybridizing European toads, **Hertwig, Weiss & Ziemann**.—Embryonic and larval epiphysectomy in *Taricha torosa* and observations on scoliosis, **Kelly**.—Effect of desoxycorticosterone acetate on Anuran metamorphosis, **Kobayashi**.—Formation of primordial germ cells from presumptive

ectoderm of *Triturus gastrulae*, **Kotani**.—Gastrular blockage of frog's eggs produced by oxygen, **Malamed (1)**.—Induction of spermiogenesis in *Rana* by adrenaline and pregnyl extracts, **Oordt**.—Young *Bufo viridis* larvae kept in dilute thyroxin solutions, **Perri (2)**.—Haploid amphibian embryos produced by ultra-violet light, **Selman (2)**.—Preliminary differentiation after grafting *Triton* to *Rana esculenta* embryos, **Spirito & Bondi**.—Differentiation of *Rana* larvae after treatment with various chemicals, **Stefani**.—Effect of colchicine on early development of *Rana limnocharis*, **Su & Tsai**.—Reaction of gastrula of *Triturus vulgaris* to implants of guinea pig treated with rabbit immune sera, **Vainio**.—Regional inductive effect of pentose nucleo-protein (PNP) from the liver and kidney, on *Triturus gastrulae*, **Yamada**.—*Bufo vulgaris formosus* eggs treated with potassium oxalate, **Yamamoto**.

**Fertilisation**.—Cortical changes at fertilization of toad eggs, **Osana**.

**Growth**.—Size of brain and eyes in embryos of various Anura, **Balinsky**.—The mode of growth of the tail in urodele larvae, **Bijtel**.—Growth of *Bufo r. regularis* studied by marking and recovery; development of fat bodies, ovaries and testes, **Chapman & Chapman**.—Growth rates of *Rana catesbeiana*, **Cohen & Howard**.—Size of species in relation to tooth size and count, **Goin, C. J. (2)**.—Early stages in the normal development of the hind limb of *Xenopus laevis*, **Hughes & Tschumi**.—Rapid growth rates and better viability of embryo *Ambystoma maculatum* symbiotic with *Oophila amblystomatis*, **Hutchison & Hammen**.—Tissue growth and wound healing in Amphibia, **Ioff**.—Interrelation between growth rate, morphological changes of the hypophysis and thyroid and gonadal development, **Iwasawa (2)**.—Growth inhibition in crowded tadpoles, **Richards**.—Control of tadpole growth by feed back mechanisms, **Rose**.—Effect of embryonic age on the response to blastocoel perfusion, **Shapiro**.—Seasonal variation in tooth size and number in *Eurycea*, **Stewart**.—The development and growth of haploid and homozygous diploid frog embryos obtained from transplantations of haploid nuclei, **Subtelny**.—Growth in the amphibian egg, **Swann & Mitchison**.

**Larval Stages**.—Development of *Hyperolius zonatus* and *H. lamottei*, **Arnoult & Lamotte**.—Reversed proximodistal polarity in larval and metamorphosing urodeles, **Deck & Riley**.—Origin, development and changes of the gills and lungs of *Kaloula borealis*, **Giang & Li**.—Of *Pseudacris brimleyi*, **Gosner & Black (1)**.—Criteria for identification of some North American *Bufo*, **Gosner & Black (2)**.—Larval development of *Phrynobatrachus francisci*, **Lamotte & Dzieduszycka**.—Larval development of *Ramanella obscura*, **Morgan-Davies (2)**.—Larvae of *Eurycea lucifuga*, **Myers (1)**.—Respiratory rate and enzyme systems in developing *Bufo*, **Petrucel**.—Somatic variation and dwarf phenomena in *Telmatobius* larvae from the Andes, **Pisanó**.—Inhibition by chemical substances of early embryonic differentiation, particularly of the lens, in *Triton alpestris*, **Schenk & Töndury**.—Development of hard dentine in *Triturus* teeth, **Schmidt, W. J. (1)**.—Of *Rana palmipes* and *R. macroglossa*, **Volpe & Harvey**.

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Of *Gastrotheca marsupiata* in captivity, Grenard.—Direct development of *Arthrolepis cruscum* descd. and figd., Guibé & Lamotte (2).—Life cycle of *Rana temporaria* and the turnover of radiostrontium and radioyttrium by tadpoles, Lucas & Pickering.

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**Neoteny.**—Factors affecting neoteny in *Dicamptodon ensatus*, Schuierer.

**Ontogeny.**—Frequency and repetition rate of frog calls related to body size, Blair (4).—The vertebral column of *Bufo regularis*, Sedra & Moursi.—Vascularization of respiratory surfaces in ontogeny of *Ambystoma mexicanum*, Czekep.—Seasonal variation in teeth of *Eurycea*, Stewart.

**Organisers.**—Diffusibility experiments on amphibian evocators, Brahma.—Neural induction in *Triturus alpestris*, Botenbrood.—Implants of competent ectoblast of *Pleurodeles waltii* to blastocoels of *P. waltii* giving nervous tissue, Denis.—The role of neural and non-neural tissues in lens induction, Jacobson.—The dependence of the cellular transformation of the competent ectoderm on temporal relationships in the induction process, Toivonen.

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ear and capsule development in *Ambystoma*, Van Dyke & Detwiler.

**Technique.**—Method for sectioning refractory tissue (ovaries and eggs of *Eleutherodactylus*, *Sphenophryne* and calcified skin of *Brachycephalus*), Griffiths & Carter.

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## EVOLUTION AND GENETICS

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chromosomes of *Triturus pyrrhogaster* and *T. viridescens* oocytes, Wischnitzer.

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## ECOLOGY AND HABITS

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figs., Conant (2). —Care in captivity of *Chioglossa lusitanica*, Goux. —Laboratory rearing of newts for experimental purposes, Williams.

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Europe, **Germaine**.—Winter activities and habitats of *Rana clamitans* larvae, **Getz**.—Population study of *Typhlotriton* in Laclede Co. cave, Missouri, **Hendricks & Kezer**.—Amphibians of Florida caves, **Holman** (2).—Missouri cave dwelling Amphibia, **Myers** (3).

**Ecological Associations**.—Amphibians occurring in saltwater areas, a review of literature and comments, **Neill** (2).

**Economics**.—Larvae of *Lechriodus* in Wissel Lakes, New Guinea eaten by Papuans, **Brongersma L. D.**—Therapeutic uses of toad venoms, **Frèrejacque**.—Use of herpetofauna of Florida by early Indians, **Neill, Gut & Brodkorb**.

**Effects of Environment**.—Seasonal sensitivity of *Bufo* to chorionic gonadotrophin, **Allison**.—Effect of environmental factors on anuran mating call, **Blair** (4).—Eruption after rain of *Batrachoseps*, **Grant**.—Seasonal variations in bullfrog carbohydrate metabolism, **Hashimoto, Morita & Matsuyama**.—Effects of crowding *Rana temporaria* tadpoles, **Holler**.—Late breeding of *Pseudacris* after heavy rainfall, **Kennedy**.—Mass migration of *Pelobates cultripes* in heavy rain at Canet, France, **Petit & Lomont**.—Dependence on external factors of spawning in *Salientia*, **Rühmekorf** (1).—Action of light on the spawning of larval *Salientia* **Rühmekorf** (3).

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**Feeding Habits**.—Mice eaten by large toads, **Boettger**.—*Salamandra salamandra*, **Buchholz**.—*Rana catesbeiana* omnivorous; stomach contents listed, **Cohen & Howard**.—The diets of some eastern North American amphibians, **Conant** (2).—Stomach contents of some species of S. Florida, **Duellman & Schwartz**.—Of *Leptodactylus ocellatus*, **Gallardo** (1).—Behaviour of *Bufo calamita* in seeking food by olfactory orientation, **Heusser** (3).—Ant feeding behaviour of *Microhyla carolinensis*, **Holman & Campbell**.—*Eurycea lucifuga*, **Hutchison**.—Studies on the diet of *Bombina bombina*, **Lac**.—Termites as the diet of *Myobatrachus gouldii*, **Philipp**.—Food of N. American Hylidae and Ranidae, **Sweetman**.—Stomach contents analysis of *Rana esculenta*, **Tyler**.

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**Homings**.—In *Bufo arenarum* and *Leptodactylus ocellatus*, **Gallardo** (1).

**Larval Stages**.—Birth of *Gastrotheca marsupiatum* tadpoles, **Grenard**.

**Longevity**.—*Triturus* [*Cynops*] *pyrrhogaster* 24½ years in captivity, **Hensley**.

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*Bufo r. regularis* in S. W. Tanganyika, **Chapman & Chapman**.—Behaviour of *Leptodactylus ocellatus* and *Bufo arenarum*, **Gallardo** (1).—Spawning migration in *Bufo bufo*; a population study, **Heusser** (1).—Experimental moving of frogs from their natural territories, **Heusser** (4).—Observations on *Rhacophorus schlegelii*, **Kato** (1).—Seasonal migration of *Rana temporaria* in Far East river Tadushe, **Kurentsov**.—Daily cycle of activity of *Bufo boreas*, **Mullally**.

**Moult**.—Skin shedding in *Bufo arenarum* and *Leptodactylus ocellatus*, **Gallardo** (1).—Moulting behaviour in salamanders, frogs and toads; figs., **Heusser** (2).

**Nesting Habits**.—Of *Chiromantis petersi kelleri*, **Cherchi** (2).—Direct development of *Arthroleptis cruculatus*; nest below ground, **Guibé & Lamotte** (2).—Nest construction by *Rhacophorus c. cruciger* desod, and figd., **Morgan-Davies** (1).—Reproduction activities and foam nests of *Chiromantis rufescens* and *O. xerampelina*, **Verbaak**.

**Parasitism**.—Parasitosis from helminths of the cystic type on batrachia near Lake Trasimeno, **Gianotti**.—Blood parasites after X-irradiation of newts, **Jakowska et al.**.—Further notes of *Batrachomyia* larvae and their Anuran hosts, **Mertens** (3).—Frog and toad hosts of *Nyctotherus* sp. nov. from Dharwar, **Uttangi**.—Amphibians and their parasites from Lake Drużno, N. Poland, **Wisniewski**.

**Population Studies**.—*Bufo r. regularis* in S. W. Tanganyika, **Chapman & Chapman**.—Amphibia in a small area in Kansas, **Fitch, H. S.**.—Comparison of the nonbreeding habits of *H. quirella* and *H. cinerea*, **Goin, O. B.**.—Relationship between bat and insect population and population of *Typhlotriton* in Missouri cave, **Hendricks & Kezer**.—Behaviour cycle of *Bufo bufo*; spawning migration, **Heusser** (1).—Crowding effects on *Rana temporaria* tadpoles, **Hodler**.—*Eurycea lucifuga*, **Hutchison**.—Amphibians of the Gómez Farías region, Tamaulipas, Mexico; biogeographic analysis, **Martin**.—Population ecology of the spadefoot toad, **Pearson** (1).—On a population of *Acris crepitans* in Texas, **Pyburn, W. F.**.—On *Atelopus cruciger* in Venezuela, **Sexton**.

**Sex Relations**.—Hair of *Trichobatrachus* as a possible means of discrimination by the sexes, **Mertens** (1).

**Social and gregarious habits**.—Mass migration and social tendencies of *Bufo cognatus*, **Bragg & Brooks**.

**Symbiosis**.—*Ambystoma maculatum* embryo-Oophila ambystomatis symbiosis, **Hutchison & Hammen**.

**Technique**.—Collecting amphibians; equipment, **Conant** (2).—Method for collecting *Leptodactylus hylaedactylus*, **Goin & Layne**.—Various trapping methods used on frogs, **Heusser** (4).—Methods described for marking of frogs by scarification by hypodermic needle and banding toes with cylindrical bird bands, **Kaplan**.—Procaine hydrochloride as a killing agent for amphibians, **Livezey**.—Procedure for "crowding" experiments with *Rana pipiens* tadpoles, **Richards**.

**Voice**.—Call differences in hylid frogs, **Blair, W. F.**.—Analysis of anuran calls; patterns of geographic variation in call, effect of environment and ontogeny on call, **Blair** (4).—Absence of call difference between

*Scaphiopus holbrookii* and *S. huerteri*, Blair (5).—On the purpose of frogs' calls with sonograms and an illustration, p. 189, showing calling stations of various species, Bogert.—Warning vibration in *Pleurodema bibroni*, Cei & Aguilera.—Of *Rana obbiana*, Cherchi (1).—Calls of North American frogs desc., Conant (2).—Of some S. Florida amphibians, Duellman & Schwartz.—Influence of voice in sex attraction of *Bufo arenarum* and *Leptodactylus ocellatus*, Gallardo (1).—Of Colombian frogs, Goin & Layne.—Of *Pseudacris brimleyi*, Gosner & Black (1).—Importance of the call in reproductive behaviour of *Pseudacris nigrita*, Martof & Thompson.—Call of *Ramanella obscura* desc., Morgan-Davies (2).—The varied calls of *Hyla gratiosa*, Neill (3).

### GEOGRAPHICAL DISTRIBUTION

**General: Zoogeography.**—Distribution of Amphibia in the U.S.A., Blair (1).—Of Eastern Canada, Bleakney, J. S.—Biogeography of the Balearic Islands, Colom.—Herpetofauna of S. Florida, Duellman & Schwartz.—Origin of the herpetofauna of Florida, Goin, C. J. (1).—Distribution and evolution of the species of *Crinia*, *Neobatrachus* and *Heletoporus*, Main, Lee & Littlejohn.—Biogeographic analysis of the amphibians of the Gómez Farías region, Tamaulipas, Mexico, Martin.—Zoogeography of the Ambystomidae, Tihen.

### PALEARCTIC REGION

#### Europe.—Eiselt.

England.—(Dorset), Gooch.—(Dernford Fen, Cambridgeshire), Sharp.

Austria.—(Tirol), Hellmich (1).—(Burgenland), Sochurek.

China.—Huene (1).

France.—(Alpes Maritimes), Aellen.—(Marseilles), Berner.

Germany.—(Görsenstein), Brunner, G.

Hungary.—Dely.—(Pilis Mt., N. W. Budapest), Szabo.

Japan.—(Honshu and Shikoku), Alexander & Diener.—Loo Choo Is. (Amami group), Koba.

Luxembourg.—Hoffmann.

Mediterranean.—Balearic Islands, Colom.

Mongolia.—Bannikov.

Poland.—Fudakowski.—(S. W. Poland), Bekak.—(near Warsaw), Klekowski.—(Cracow), Mickalowski.—(Lake Druzno, Northern Poland), Wisniewski.

Portugal.—Goux.

Russia.—Crimea, Chernov, S. A.—Kola Peninsula, Novikov.—(Transcaucasia), Rotter.—(Caucasian Isthmus), Vereshchagin.

Spain.—Goux.

Turkey.—(Anatolia), Hellmich (2).

### ORIENTAL REGION

Ceylon.—Kirtisinghe.—Morgan-Davies (1), (2) & (3).—Silva.

India.—Huene, (2).

Maldiv Islands.—Phillips.

Philippine Islands.—Alcala (1).—(Negros Island), Alcala (2).—Rabor, Alcala & Gonzales.

Sarawak.—Inger (2).

Thailand.—Taylor & Elbel.

### AUSTRALIAN REGION AND POLYNESIA

Australia.—Littlejohn (1).—Main, Lee & Littlejohn.—Moore (2).—(C. Australia), Mertens (4).

New Guinea.—Brongersma, L. D.—Zweifel (2).

### ETHIOPIAN REGION

Central Africa.—(S. Rhodesia: Inyanga district), Fitzsimons.—(Belgian Congo), Laurent (2).—(French Cameroons), Guibé & Lamotte (1).—Perret (1) (2) & (3).

East Africa.—Somalia, Cherchi (1), (2), (3).

South Africa.—(Eastern Cape Province), Kitching.

West Africa.—French Guinea (Doromou), Guibé & Lamotte (3).—French Guinea (Mount Nimba), Guibé & Lamotte (4).—French Guinea (Mt. Nimba), Laurent (1).—(Liberia), Taylor & Weyer.

São Tomé, Principe and Rolas Islet.—Manacas.

Seychelles.—Parker.

### NEARCTIC REGION

Canada.—Eastern Canada, Bleakney, J. S.—(East of 100th meridian), Conant (2).—British Columbia, Carl & Guiguet.—Nova Scotia, Romer.—Ontario (Long Point), Adams & Clark.

United States.—(East of 100th meridian), Conant (2).

North Eastern States.—Wasserman.—Delaware (Delmarva Peninsula), Conant (1).—Maryland (E. shore), Conant (1).—Maryland & Delmarva, Reed (1).—Maryland (Worcester Co.), Reed (2).—Maryland (Delmarva Penin.), Reed (3).—Michigan (Jackson Co.), Hahn, D. E.—Minnesota (Cass Co.), Brattstrom (1).—New Jersey, Black & Gosner.—Pennsylvania (Delmarva Penin.), Conant (1).

South Eastern States.—Blair (1).—Arkansas, Louisiana, Missouri, Wasserman.—Arkansas (Ozark Plateau and Ouachita Mts.), Dowling.—Florida, Blair, (3).—S. Florida, Duellman & Schwartz.—Florida, Goin, C. J. (1).—Florida, Holman (1).—Florida (Citrus Co. and Alachua Co.), Holman (2).—Florida, Neill, Gut & Brodkorb.—Florida (Jackson Co.), Pylla & Warren.—Florida, Riemer (1).—Florida, Stevenson.—W. & C. Georgia (Coastal Plain), Goodman.—Kentucky, Barbour.—Kentucky (Livingstone Co.), Rossman (2).—S.E. Louisiana, Volpe.—Mississippi (Wayne & Copiah Co.), Brode.—Mississippi (Winston Co.), Ferguson & Rhodes.—Missouri (Laclede Co.), Hendricks & Kezer.—Missouri, Myers

(2).—*E. Missouri*, Myers (3).—*Tennessee (White Co.)*, Rossman (1).—*Virginia (Delmarva Peninsula)*, Conant (1).

**Middle and Western States.**—*Arizona (Glen Canyon)*, Tanner. — *Arizona*, Williams & Chrapliwy. — *S. Dakota*, Woodbury. — *Kansas (Lyon Co.)*, Clarke, Breukelman & Andrews. — *Kansas*, Fitch, H. S. — *Nevada*, Brattstrom (2). — *Oklahoma*, Bragg (3). — *Oklahoma*, Wasserman. — *N.E. Oregon (Baker Co.)*, Ferguson, Payne & Storm. — *Texas (Montague Co.)*, Goin & Auffenberg. — *Texas*, Olson. — *Utah (Glen Canyon)*, Tanner. — *Wyoming (Niobrara Co.)*, Goin & Auffenberg. — *Wyoming (Yellowstone National Park)*, Turner.

**Pacific Coast States.**—*California (O'Neale)*, Cohen & Howard. — *California*, Karlstrom. — *California (Eldorado Co.)*, Mullally & Powell. — *California (San Luis Obispo Co., 3954 ft.)*, Pimentel (2). — *California (Lake Co.)*, Plutner.

#### CENTRAL AMERICA

**Canal Zone.**—Fouquette.

**Cuba.**—(*Western*), Schwartz (1). — (*Pinar del Rio Province*), Schwartz (2) & (3). — (*Pinar del Rio and Oriente Provs.*), Schwartz (4).

**Costa Rica.**—Taylor, E. H. (1).

**Haiti.**—Lynn.

**Mexico.**—Smith & Chrapliwy. — *Shannon & Humphrey*. — *Duellman (2)*. — *W. Mexico (Colima)*, Duellman (1). — (*Gómez Farias, Tamaulipas*), Martin. — (*Chiapas*) Poglajen & Smith. — (*N.E.*), Rabb. — (*Jalisco*), Smith & Grant. — (*N.W. Sonora*), Smith & Hensley. — (*Coahuila*), Webb. — *Baja California (S. Todos Santos I.)*, Zweifel (1).

#### SOUTH AMERICA

**Argentina.**—Gallardo (1).

**Brazil.**—(*Fed. Terr. of Amapa*), Bokermann (1) & (2). — (*Southeast*), Lutz & Carvalho.

**Chile.** — Capurro. (1). — *Cei (1) & (4)*. — *Cei & Capurro*.

**Colombia.**—(*Leticia, Amazonas Commissary*), Goin & Layne.

**Venezuela.**—Gines. — Sexton.

#### PALEONTOLOGY AND GEOLOGICAL DISTRIBUTION

**Carboniferous.**—Romer.

**Cretaceous.**—Goin & Auffenberg.

**Permian.**—(*Vale & Choza*), Olson.

**Pleistocene.**—Brattstrom (2). — Brunner, G. — Holman (1). — Neill, (1).

**Pliocene.**—Auffenberg. — Heller.

**Triassic.**—Huene (1) & (2). — Kitching.

### III.—SYSTEMATIC INDEX

THE ORDERS, AND FAMILIES AND GENERA WITHIN THEM, ARE ALPHABETICALLY ARRANGED.

References to the "Titles" is by the name(s) of the Author(s) printed in clarendon type.

#### AMPHIBIA

**General: Fossil.**—†Pre-tertiary saurians of Asia, Huene (2). — †Amphibia, one gen. nov. Eryopid undescribed, from the Permian of Texas, Olson. — Classification of Amphibia with Geological occurrence, Swinton.

**General: Recent.**—Classification of the Amphibia, Baer. — Zoogeography of the amphibians of Eastern Canada, Bleakney, J. S. — Notes on amphibians of New Guinea, Brongersma, L. D. — Amphibians of Chile, Capurro (1). — Previously unpublished plates from Philippi's *Suplemento los Batracios Chilenos*; discussion on status and synonymy of species, Cei (4). — Systematic review of the amphibians of Crimea, Chernov, S. A. — Field guide to amphibians of Eastern N. America; descriptions, figs. and colour plates, distribution maps, Conant (2). — Systematic account of S. Florida amphibians. Notes on life history, habits, variation, ecology and distribution, Duellman & Schwartz. — Salientia from the Banyuls region, Duguy & Philippe-Knoepffler. — Frogs from Amazonas region, S. Colombia, Goin & Layne. — Amphibians of Mt. Nimba, French Guinea. (*Arthroleptis*, *Phrynobatrachus* and *Hyperolius* excluded.) Guibé & Lamotte (4). — First descriptions of tadpoles of some species of anura from Ceylon, Kirtisinghe. — Amphibians of the Gómez Farias region, Tamaulipas, Mexico; biogeographic analysis, Martin. — Type specimens in the Chicago Natural History Museum, Marx. — Amphibia of Kola peninsula, Novikov. — Brief list of Negros Island amphibians, Rabor, Alcala & Gonzales. — Amphibians of Glen Canyon, Colorado R., Utah, Tanner. — The Amphibia of Thailand; a list of species known from the country with some descriptions and photos., Taylor & Ebel. — Amphibia of the Caucasian isthmus, Vereshchagin.

Proposed classification of the Anura, as follows. —

Superorder	Salientia
Order	Anura
Suborder	Amphicoela
Family	Notobatrachidae
Family	Leptopelmatidae
Suborder	Aglossa
Family	Pipidae
Family	Palaeobatrachidae
Family	Eoxenopoides
Suborder	Arohaobatrachia nov.
Superfamily A	
Family	Discoglossidae
Family	Rhinophrynidae
Family	Montsechobatrachidae ?
Superfamily B	
Family	Pelobatidae
Family	Pelodytidae
Suborder	Neobatrachia nov.
Superfamily A	
Family	Leptodactylidae
Family	Dendrobatidae
Family	Atelopodidae
Family	Bufoidea
Family	Hylidae

Family	Pseudidae
Family	Centrolenidae
Superfamily B	
Family	Ranidae
Family	Hyperolidae
Family	Microhylidae
Family	Phrynomeridae
Family	Heleophrynidae

Reig.

## SUPER ORDER SALIENTIA

## ORDER GYMNOPTERON

## CAECILIIDAE

Caecilians of the Seychelles Is.; a new subspecies of *Hypogeophis* desc., **Parker**.

*Caecilia rostrata*, considered generically distinct from other Seychelles caecilians and assigned to *Hypogeophis*, **Parker**.

*Dermophis larvatus* Ahl, includes *Hypogeophis angusticeps* Parker, **Parker**.

*Geotrypetes angeli*, from Harbel, Liberia, **Taylor & Weyer**.—*G. seraphini occidentalis*, from Mt. Nimba, Guibé & Lamotte (4).

*Hypogeophis*, a monotypic genus. *Hypogeophis rostratus* considered correct name for *Caecilia rostrata*, Cuvier. Lectotype designated. Three insular subspecies recognised:—*H. r. rostratus* from Mahé and Silhouette, *H. r. guentheri* from Frigate, *H. r. praslini* subsp. nov. p. 76 from Praslin, **Parker**.—*H. development* of vertebral column, **Ramaswami**.

*Ichthyophis*, vertebral column development, **Ramaswami**.—*I. glutinosus*, of Thailand; note on variation, **Taylor & Elbel**.

*Praslinia* Boulenger, *P. cooperi* type species, to be used for following Seychelles caecilians:—*Dermophis sechellensis*, *Hypogeophis alternans*, *D. larvata* (includes *H. angusticeps*), *H. brevis*, **Parker**.

*Schistometopum thomense*, on bucco-pharyngeal mucous membrane, **Elkan** (1).

## ORDER CAUDATA

Field guide for E. North American forms; descriptions, figs., colour plates, distribution maps, **Conant** (2).—General systematics and distribution, **Wahlert**.

## AMBYSTOMIDAE

Phylogeny of family discussed. Osteological evidence suggests division into three subfamilies:—*Diemotodontinae* subfamily nov., *Rhyacotritoninae* subfamily nov., and *Ambystominae*, last subfamily containing *Rhyacotriton* and *Ambystoma*. Definitions, ranges and geographical considerations, **Tihen**.

*Ambystoma*, parabiosis experiments, **Hughes & Tschumi**.—Changes in the electrophoretic serum pattern, **Manelli** (2).—Defined and discussed, **Tihen**.—Later ear differentiation, **Van Dyke & Detwiler**.

*Ambystoma annulatum*, on geographic relations of Ozarkian amphibians, **Dowling**.

*Ambystoma gracile*, habits, life-history and general data, **Carl**.—*A. g. decorticatum*, on salt water association, **Neill** (2).

*Ambystoma jeffersonianum*, of E. Canada; zoogeography, **Bleakney, J. S.**—Of Cass Co., Minnesota, **Brattstrom** (1).

*Ambystoma laterale*, of Long Point, Ontario, **Adams & Clark**.

*Ambystoma macrodactylum*, from Baker Co., Oregon, **Ferguson, Payne & Storm**.

*Ambystoma maculatum*, of E. Canada; zoogeography, **Bleakney, J. S.**—On geographic relations of Ozarkian amphibians, **Dowling**.—Embryo-alga symbiosis, **Hutchison & Hammen**.—From Piedmont of coastal Delmarva, **Reed** (3).—Radioreistance in larvae, **Stinson**.—*A. maculatum* group, defined and discussed. Referred forms:—*A. g. gracile*, *A. g. decorticatum*, *A. jeffersonianum*, *A. laterale*, *A. m. macrodactylum*, *A. m. croceum*, *A. maculatum*, **Tihen**.

*Ambystoma mexicanum*, ontogeny of vascularisation of respiratory surfaces, **Czopek**.—Mast cells in the choroid plexus, **Kappers, Ten Kate & Bruyn**.—Regeneration of the central nervous system in the early developmental stages, **Romanovsky**.—*A. mexicanum* group, defined and discussed. Forms referred:—*A. kansense*, *A. lermaensis*, *A. mexicanum*, **Tihen**.

*Ambystoma opacum*, retardation of fat body, prevention of Müllerian duct formation, **Asayama & Matsuzaki**.—Ultraviolet irradiation of upper arm of larva and its effect on regeneration of the lower part, **Butler, Blum & Schmidt**.—On geographic relations of Ozarkian amphibians, **Dowling**.—Development of the pancreas, **Frye**.—From U.S.A. general, **Lang** (2).—Hosts for accessory limb formation experiments, **Ruben & Frothingham**.—Radioreistance in larvae, **Stinson**.—*A. opacum* group, defined and discussed. Forms referred:—*A. opacum*, *A. talpoideum*, **Tihen**.

*Ambystoma punctatum*, tail growth, part played by notochord, **Bijtel**.—Regenerates on reversed hind limbs, **Deck & Riley**.—As donor of neural crest material, **Finnegan**.—Larvae in skeletal regeneration experiments, **Goss**.—Fine structure of blastema cells and differentiating cartilage cells in regenerating limbs, **Hay** (2).—Influence of the retina on lens development, **Jacobson**.—Control of limb development, **Nicholas**.—Lens induction, **Royer**.—Perfusion of blastocoel, **Shapiro**.—Inhibition of limb regeneration, **Thornton**.

*Ambystoma subalsum*, on ability to withstand salt water, **Neill** (2).

*Ambystoma talpoideum*, inhibition of limb regeneration, **Thornton**.

*Ambystoma texanum*, habitat in Lyon Co., Kansas, **Clarke, Breukelman & Andrews**.—On geographic relations of Ozarkian amphibians, **Dowling**.

*Ambystoma tigrinum*, habitat in Lyon Co., Kansas, **Clarke, Breukelman & Andrews**.—On geographic relations of Ozarkian amphibians, **Dowling**.—On bucco-pharyngeal mucous membrane, **Elkan** (1).—Radioreistance in larvae, **Stinson**.—Inhibition of limb regeneration, **Thornton**.—*A. tigrinum* group, defined and discussed. Forms referred:—*A. ambycephalum*, *A. bombypellum*, *A. fluviatum*, *A. granulatum*, *A. hibernicum*, *A. lacustris*, *A. ordinatum*, *A. r. rosaceum*, *A. r. nigrum*, *A. r. sonoriense*, *A. subalsum*, *A. t. tigrinum*, *A. t. californiense*,

*A. t. diaboli*, *A. t. mavortium*, *A. t. melanostictum*, *A. t. nebulosum*, *A. t. stebbinsi*, *A. t. velasci*, **Tihen.**—*A. t. tigrinum*, from Cass Co., Minnesota, **Brattstrom** (1).—*A. t. utahensis*, of Glen Canyon, **Tanner.**

† *Ambystomichnus*, known only from trackways, **Tihen.**

*Bathysiredon*, a subgenus of *Ambystoma* differing from *A. mexicanum* group in cranial elements. Definition and discussion. Includes *A. (B.) d. dumerili*, *A. (B.) d. queretarensis*, **Tihen.**

*Dicamptodon*, defined and discussed; range, **Tihen.**—*D. ensatus*, factors affecting neoteny, **Schneider.**

*Linguaclopus*, a subgenus to include *A. annulatum*, *A. c. cingulatum*, *A. c. bishopi*, *A. mabeii*, *A. schmidtii*, *A. texanum*. Definition, discussion and range. Radiograph of type of *A. schmidtii*, **Tihen.**

*Rhyacosiredon*, defined and discussed. Referred forms:—*R. altamirani*, *R. leorae*, *R. rivularis*, *R. zempoalensis*, **Tihen.**

*Rhyacotriton*, defined and discussed; range. Referred forms, *R. o. olympicus*, *R. o. variegatus*, **Tihen.**—*Rhyacotriton olympicus variegatus*, vital limits and desiccation, **Ray.**

*Siredon mexicanum*, irradiation of parts of the head, **Brunst.**—Grafting of the nasal placode to the fore limb area, **Kiortsis** (2).—Inversion of the dorso-ventral axis, **Levtrup & Pigon.**—Tail regeneration after abnormal amputations, **Newth** (1).—Respiration during development, **Rudnick.**—Neural closure and the forces involved, **Selman** (1).

#### AMPHIUMIDAE

*Amphiuma means*, Of S. Florida; habitat, stomach contents, nests, range, **Duellman & Schwartz.**—On bucco-pharyngeal mucous membrane, **Elkan** (1).—Late Pleistocene record from Florida; doubts on accuracy of age of remains due to rapid mineralisation of bones, **Neill** (1).

#### CRYPTOBANCHIDAE

Ecology and world distribution, **Wahlert.**

*Cryptobranchus a. alleganiensis*, *C. a. bishopi*, on geographic relation of Ozarkian amphibians, **Dowling.**—*C. japonicus*, head musculature, **Schumacher** (1).—Musculature, **Schumacher** (2).

*Megalobatrachus japonicus*, histology of teeth, **Schmidt, W. J.** (2).—Commissural systems of the cerebellum, **Tamura, Yashiki, Kondo & Numata.**

#### HYNOBIIDAE

*Hynobius dunni*, alkaline phosphatase of the retina in late embryogenesis, **Yoshida** (2).—*H. keiserlingii*, cessation of regeneration by synthetic cancer causing substances, **Tokin & Filatova.**—*H. nebulosus*, sex development modified by methyl-testosterone, **Asayama & Amanuma.**—Estrogen administration to larval gonads, **Asayama & Miyamori.**—Kinetic properties of the marginal zone of eggs, **Ikushima.**—Iodine accumulation in pigmented tissues, **Koshida** (1).—*H. retardatus*, water absorption by the eggs, **Aoki.**—Effect of follicular hormone on sex differentiation, **Hanaoka** (1).—Effect of testosterone-propionate on sex differentiation, **Hanaoka** (2).

#### PLETHODONTIDAE

Phylogeny and map of distribution in North America, **Wahlert.**

*Aneides ferreus*, *A. flavipunctatus niger* and *A. lugubris*, vital limits and desiccation, **Ray.**

*Batrachoseps attenuatus*, induced oviposition and incubation of eggs, **Anderson.**—On bucco-pharyngeal mucous membrane, **Elkan** (1).—Eruption of individuals from a crack after rain, **Grant.**—From North America, **Lang** (3).—From Pine Mt., 3954 ft., San Luis Obispo Co., California, **Pimentel** (2).—Vital limits and desiccation, **Ray.**—From San Diego, general notes on its study, **Shaw.**—*B. pacificus leucopus*, from S. Todos Santos Island, Baja California, **Zweifel** (1).

*Bolitoglossa*, osteological study of following forms:—*platydictyla*, *rufescens*, *occidentalis*. Comparison with *Salamandra* and *Plethodon*; figs., **Hansen & Tanner.**—*B. occidentalis*, *B. rufescens*, of Chiapas, **Poglayen & Smith.**

*Chirotroteron*, N. E. Mexico species divided into two groups on basis of size and dentition. Species and subspecies recognised:—*C. multidentatus* (photo.), *C. arboreus*; *C. mosaueri*; (photo.); *C. c. chondrostea*; *C. c. terrestris* (photo.); *C. c. cracens* subsp. nov., **Agua Linda**, 5950 ft., ± 7 mls. W.N.W. Gómez Farías, Tamaulipas, p. 28; *C. dimidiatus*, **Rabb.**—*C. chondrostea*, *C. multidentata*, habitat at Gómez Farías, Tamaulipas, **Martin.**

*Desmognathus fuscus*, thyroid activity and the effect of goitrogens, **Dent & Lynn.**—On geographic relations of Ozarkian amphibians, **Dowling.**—Structure of meiotic chromosomes from primary spermatocytes, **Moses.**—Radioresistance in larvae, **Stinson.**—*D. fuscus conanti* subsp. nov. p. 158, 400 ft., 2-1 mls. S. Smithland, Livingstone Co., Kentucky, **Rossman** (2).—*D. f. fuscus*, of E. Canada; zoogeography, **Bleakney, J. S.**—Low temperatures, hibernation and its effect on digestion, **Joly.**—Of Piedmont, coastal Delmarva, **Reed** (3).—*D. ochrophaeus*, on buccal and pharyngeal mucous membranes, **Elkan** (1).—*D. ochrophaeus carolinensis*, cheek skin color parallelism, **Reynolds.**

*Ensatina eschscholtzi*, on bucco-pharyngeal mucous membrane, **Elkan** (1).—*E. e. xanthoptica* vital limits and desiccation, **Ray.**

*Eurycea bistineata*, chromosome numbers in larval somatic cells, **Fankhauser & Dluhy.**—*E. b. bistineata*, of E. Canada; zoogeography, **Bleakney, J. S.**—Effect of low temperatures and hibernation on digestive rates, **Joly.**—Of Piedmont of coastal Delmarva, **Reed** (3).—Seasonal variation in teeth, **Stewart.**—*E. longicauda guttolineata*, from Mississippi caves, **Brode.**—From cave in Mississippi, **Brode & Gunter.**—*E. l. longicauda*, of E. Missouri caves, **Myers** (3).—*E. longicauda melanopleura*, *E. lucifuga*, *E. m. multiplicata*, *E. m. griegaster*, *E. tynerensis*, on geographic relations of Ozarkian amphibians, **Dowling.**—*E. lucifuga* distribution, ecology and physiology, **Hutchison.**—Notes on eggs and larvae; hatchling figd., **Myers** (1).—On occurrence in E. Missouri caves, **Myers** (3).

*Gyrinophilus porphyriticus inagraciosus*, type locality restricted to Salt Creek, 4 mls. S.W. of S. Bloomingville, Salt Creek Township, Hocking Co., Ohio, **Condit.**—*G. p. porphyriticus*, of E. Canada; zoogeography, **Bleakney, J. S.**

*Haideotriton cf. wallacei*, from Jackson Co., Florida; habitat; photo., **Pylka & Warren**.

*Hemidactylum scutatum*, of E. Canada; zoogeography, **Bleakney, J. S.**—On geographic relations of Ozarkian amphibians, **Dowling**.—Of Piedmont, coastal Delmarva, **Reed (3)**.—From near Tallahassee, Florida, **Stevenson**.

*Hydromantes*. On characters and distribution, tongue action; note on reproductive behaviour; figs., **Elkan (2)**.—List of species and distribution, **Elkan (3)**.—*H. italicus strinati* subsp. nov., p. 156, photo., Aspremont cave, Alpes Maritimes, France. Distribution of species discussed; maps, **Aellen**.

*Plethodon caddoensis*, *P. cinereus angusticlavus*, *P. c. serratus*, *P. glutinosus P. ouachitae*, geographic relations of Ozarkian amphibians, **Dowling**.—*P. cinereus*, red and black pigments, **Hertzel**.—Relation between axial complex of meiotic prophase chromosomes and chromosome pairing, **Moses**.—Study of evolutionary significance of rare matings in low density populations, **Mosimann**.—*P. c. cinereus*, of E. Canada; zoogeography, **Bleakney, J. S.**—From E. Missouri cave, **Myers (3)**.—*P. dorsalis*, from Winston Co., Miss., range extension, **Ferguson & Rhodes**.—*P. dunni* and *P. elongatus*, vital limits and desiccation, **Ray**.—*P. glutinosus*, map, p. 451, of distribution in the Southern United States, **Blair (1)**.—On bucco-pharyngeal mucous membrane, **Elkan (1)**.—† *Plethodon glutinosus*, Pleistocene of Saber-tooth cave, Florida, **Holman (1)**.—*P. g. glutinosus*, from Mississippi caves, **Brode**.—Egg masses desod., note on prehensile tail of cave specimens, **Brode & Gunter**.—In association with *Eurycea lucifuga* in E. Missouri cave, **Myers (3)**.—*P. jordani jordani*, parallelism between cheek skin colour and the "imitator" variety of *Desmognathus ochrophaeus carolinensis*, **Reynolds**.—*P. jordani metacalfi*, courtship and spermatophore desod. and figd., **Organ**.

*Pseudoeurycea belli*, *P. cephalica*, *P. scandens*; habitat in Gómez Farías, Tamaulipas, **Martin**.

*Pseudotriton montanus*, electron microscope study of lampbrush chromosomes, **Lafontaine & Ris**.—*P. r. ruber*, on bucco-pharyngeal mucous membrane and capillary network, **Elkan (1)**.—Of Piedmont, coastal Delmarva, **Reed (3)**.—*P. ruber vioscai*, from Mississippi caves, **Brode**.

*Typhlotriton spelaeus*, on geographic relations of Ozarkian amphibians, **Dowling**.—Population and ecological study in Missouri cave, **Hendricks & Kezer**.—From E. Missouri cave, **Myers (3)**.

#### PROTEIDAE

*Necturus* diagnoses and keys to eastern N. American forms, survey of distribution. Four distinct species recognised: — *punctatus*, *beyeri*, *lewisi*, *maculosus*. Discussion on relationships and taxonomic characters; maps, **Hecht (2)**.—*N. maculosus*, habitat in Lyon Co., Kansas, **Clarke Breukelman & Andrews**.—On geographic relations of Ozarkian amphibians, **Dowling**.—Induced ovulation, **Fitch, K. L.**—Electron microscope study of lampbrush chromosomes, **Lafontaine & Ris**.—*N. m. maculosus*, of Long Point, Ontario, **Adams & Clark**.—Of E. Canada; zoogeography, **Bleakney, J. S.**

*Proteus anguinus*, on buccal and pharyngeal mucous membranes, **Elkan (1)**.

#### SALAMANDRIDAE

Systematics, general biology and American distribution, **Wahler**.

*Chioglossa lusitanica*, from the Balearic Islands, **Colom**.—Ecology, biology and distribution; map and note on care in captivity, **Goux**.

*Cynops ensicauda*, of Amami group, Loo Choo Is., **Koba**.—[C.] *Triturus pyrrhogaster* from Shikoku, Japan, **Alexander & Diener**.—Gonadal response to methyltestosterone, **Asayama & Matsuzaki**.—Experimental tetraploidy attempts, **Fischberg**.—24 years 6 months in captivity, **Hensley**.—Kinetic properties of the marginal zone of eggs, **Ikushima**.—Lens induction, **Jacobson**.—Yolk platelets structure, **Karasaki & Komoda**.—Differentiating potencies of the dorsal part of the blastopore lip, **Kato (3)**.—Formation of primordial germ cells, **Kotani**.—Erythrocytes stained with o-amino-azo-toluene; **Nagatani**.—Study of the lateral loop chromosomes of oocytes, **Wischnitzer**.

*Diemictylus viridescens*, supernumary limb development, **Bodemer**.—Regenerates on reversed hind limbs., **Deck & Riley**.—Goitrogens studied from their effect on thyroid activity, **Dent & Lynn**.—Geographic relations of Ozarkian amphibians, **Dowling**.—Somatic chromosome constancy in larvae, **Fankhauser & Dluhy**.—In regeneration experiments, **Goss**.—Lower jaw regeneration, **Goss & Stagg (1)**.—Jaw regeneration, **Goss & Stagg (2)**.—Water drive studies on hypophysectomised efts, **Grant & Grant**.—Effect of thyroxine on limb regeneration, **Hay (1)**.—Radiobiology, **Jakowska et al.**—Electron microscope study of lampbrush chromosomes, **Lafontaine & Ris**.—Intestinal regeneration, **O'Steen**.—Rhythmic electrical activity of skeletal muscle, **Peters et al.**—Accessory limb formation, **Ruben & Frothingham**.—Regeneration in athyroid newts, **Schmidt, A. J.**—Study of the lateral loop chromosomes of oocytes, **Wischnitzer**.—Breeding behaviour, **Woodford**.—*D. v. louisianensis*. From E. Missouri cave, **Myers (3)**.—*Notophthalmus v. piaropicola*, of S. Florida; habitat, variation, breeding dates, stomach contents, **Duellman & Schwartz**.—*D. v. viridescens*, of Long Point, Ontario, **Adams & Clark**.—Of E. Canada; distribution, **Bleakney, J. S.**—Metabolic effect of cortisone acetate during limb regeneration, **Manner**.—From Piedmont of coastal Delmarva, **Reed (3)**.—Studies on lens induction, **Reyer**.—Retina influence on lens regeneration, **Stone**.—Lens regeneration and retinal factor, **Stone & Gallagher**.

*Euproctus montanus*, on bucco-pharyngeal mucous membrane, **Elkan (1)**.

*Mertensiella caucasica*, of Transcaucasia; photo., **Rotter**.—*M. luschni*, descrip. of Hamburg Inst. specimen and study of skull (photo. and X-ray). Considered intermediate between *M. caucasica* and *Salamandra*, **Baloglu & Freytag**.

*Molge*, see under *Triturus*.

*Notophthalmus*, see under *Diemictylus*.

*Pleurodeles*, Algerian-Tunisian population belong to *P. poireti* (includes *P. hagenmülleri*); distinguished from *P. waltli*. Discussion on Iberian and Moroccan populations of *P. waltli*, **Pasteur (1)**.—*P. waltli*, parabiosis experiments, **Beetschen (1)**.—Cytological study of lethal heteroploid embryos, **Beetschen (2)**.—Hepatic glycogen distribution, **Bellec (1)**.—Effect on

embryonic development of returning eggs, **Brouant & Cury**.—Competent ectoblast and nervous differentiation, **Denis**.—On bucco-pharyngeal mucous membrane, **Elkan (1)**.—The notochord as an inductor, **Eyal-Giladi**.—Chromosome number constancy in larval somatic cells, **Fankhauser & Dinhy**.—Larval parabiosis experiments, **Gallien (1)**.—Induction of vertebrae and surrounding tissues, **Gallien (2)**.—Action of phenol on egg mitoses and segmentation, **Sentein**.

*Salamandra atra*, temperature preference, **Freytag (3)**.—Believed not to occur in Poland, **Fudakowski**.—*S. salamandra*, from Marseilles, **Berner**.—Feeding habits, **Buchholz**.—Taxonomic study based on colour and pattern. Races considered valid and figd.: *salamandra*, *algira*, *almanzoris*, *bejarae*, *corsica*, *fastuosa*, *gallaica*, *gigliolii*, *infraimmaculata*, *semenovi*, *terrestris*. Colour plates of typical form and of *gallaica*. Diagnoses, distributions (maps), synonyms and biological notes given, **Eiselt**.—On bucco-pharyngeal mucous membrane, **Elkan (1)**.—Distribution in Poland, **Fudakowski**.—Regeneration of the tail region in larval forms, **Kiortsis & Droin**.—Regeneration of reversed polarity grafts, **Oberheim & Luther**.—From N.W. Budapest; habitat, **Szabo**.—Cytological study, **Ziemann**.—*S. s. quadrivirgata*, temperature economy, **Freytag (3)**.—*S. maculosa* [*S. salamandra*], *S. s. salamandra*, *S. s. taeniata* from the Tirol, **Hellmich (1)**.—*S. s. taeniata*, digestion at low temperatures, **Joly**.

*Taricha*, species and subspecies recognised: — *t. torosa*, *t. sierrae*, *t. granulosa*, *t. mazamae*, *t. twittyi*, *t. simulans*, *rivularis*, **Pimentel (1)**.—Study of variation, systematic relationships habits, ecology and distribution. Species recognised: — *granulosa*, *torosa* and *rivularis*. Recognition of *T. g. similans* and *T. g. twittyi* and *T. torosa klauberi* not justified but *T. g. mazamae* and *T. t. sierrae* upheld; figs., **Riemer (2)**.—*T. granulosa*, considered a subspecies of *torosa*; discussion of validity, **Pimentel (1)**.—*T. rivularis*, from S. of Kelseyville, California, **Plutner**.—*T. torosa*, spleen development and experimental modification, **DeLanney**.—The hypomere and chromatoblast migration, **Finnegan**.—Gradient potentials across ectodermal flank of larva, **Flickinger & Blount**.—Lens induction experiments, **Jacobson**.—Epiphysectomy and scoliosis, **Kelly**.

*Triton*, see under *Triturus*.

*Triturus alpestris*, inactivation of newt larvae by benzimidazole, **Billett (2)**.—Organisation in aggregates of neural plate cells, **Boternbrood**.—Early gastrulae and evocators, **Brahma**.—Frontal and saggital constrictions of blastulae, **Brice**.—Embryonic development and thermal gradients, **Cury & Dollander**.—Habitats and distribution in Hungary, **Dely**.—Effect of egg turning on cortical permeability gradient, **Dollander**.—Distribution in Poland, **Fudakowski**.—Effects of chemical solutions on the larval heart, **Julien**, **Ripplinger**, **Cardot & Marcot**.—Grafting of the nasal placode to the fore limb area, **Kiortsis (2)**.—Forelimb regeneration under the effects of drugs and hormones, **Niwelinski**.—Protein synthesis in oocytes, **Pantelouris**.—Nuclear chimaeras, **Pantelouris & Jacob**.—Chemical inhibitors of embryonic differentiation, **Schenk & Töndury**.—Development of hard dentine in teeth, **Schmidt, W. J. (1)**.—Neural closure and the forces involved, **Selman (1)**.—Experiments to produce haploid embryos, **Selman (2)**.—Donors of

neural crest material, **Seno & Nieuwkoop**.—Development of gonad and sex cells, **Stärk (1)**.—Studies on the gonad development, **Stärk (2)**.—Effects of cytotoxic substances on embryos, **Waddington**.—Induction fields in young embryos, **Woellwarth**.—*T. a. alpestris*, on specimen with flecked venter, **Freytag (1)**.—Temperature preference, **Freytag (3)**.—Digestion under low temperature conditions, **Joly**.—*T. alpestris apuanus*, deformed limbs and spine curvature, **Freytag & Hübener**.

*Triturus alpinus*, behaviour and reproduction, **Sculthorpe**.

*Triturus boscai*, chromosomes, **Sacarrão**.

*Triturus cristatus*, transplant experiments, **Bondi**.—Lampbrush chromosomes from oocytes, **Callan & Macgregor**.—Effects of benzopyrene injections, **Capuani (1)**.—Benzopyrene treatment, **Capuani (2)**.—Of Crimea, **Chernov**.—Regeneration of striated muscle under the action of vitamins, **Degan & Asandei**.—On bucco-pharyngeal mucous membrane, **Elkan (1)**.—Histology and biochemistry of the heart, examination of surviving parts, **Gyéval**.—Effect of combined ovariectomy, male sex hormones and nervous supply change on the production of a crest in females, **Kiortsis (1)**.—Grafting of the nasal placode to the forelimb area, **Kiortsis (2)**.—Cytology of induced neoplasms by grafting methylcholantrene, **Leone**.—Development and variation of gonad and sex cells, **Stärk (1)**.—Effect of cancer causing substances on regeneration, **Tokin & Filatova**.—*T. cristatus carnifex* effect of lesions of the median eminence on the hypothalamo-hypophysis, adenohypophysis, thyroid and testicle, **Mazzi**.—*T. c. cristatus*, temperature preference, **Freytag (3)**.—*T. cristatus karelinii*, with adenocarcinoma of the skin behind the head, **Stolk (1)**.

*Triturus helveticus*, effect of frontal and sagittal blastulae constrictions, **Brice**.—Grafting of the nasal placode to the fore limb area, **Kiortsis (2)**.—Super-numary induced limbs, **Newth (2)**.—*T. palmatus* [*helveticus*], Protein synthesis in oocytes, **Pantelouris**.—In experiments to produce haploid embryos, **Selman (2)**.—Action of phenol on egg mitoses and segmentation, **Sentein**.—Activities and egg laying habits, **Sculthorpe**.—*T. h. helveticus*, temperature preference, **Freytag (3)**.—Low temperatures and digestion, **Joly**.

*Triturus marmoratus*, on bucco-pharyngeal mucous membrane, **Elkan (1)**.—On spine curvature, **Freytag (2)**.

*Triturus taeniatus*, mode of tail growth, **Bijtel**.—Moulting behaviour; fig., **Heusser (2)**.—Larval incompatibility on grafting, **Rossi**.—Development and variation of gonad and sex cells, **Stärk (1)**.—Multiple fibroma of the adepidermal reticular network in the skin, **Stolk (2)**.—Species-specific tumours of the skin, **Stolk (3)**.—Effect on regeneration of cancer causing substances, **Tokin & Filatova**.—Comparative cytology, **Ziemann**.

*Triturus viridescens*, see under *Diemictylus*.

*Triturus vulgaris*, correlation between developmental aspects, **Becker**.—Artificially inseminated eggs, **Fischberg**.—On breeding in brackish pools, **Neill (2)**.—Development of hard dentine in teeth, **Schmidt, W. J. (1)**.—Behaviour and reproduction, **Sculthorpe**.—Experiments to produce haploid embryos, **Selman (2)**.—In backwaters of Dernford

Fen, Sharp.—From N.W. Budapest; habitat, Szabo.  
—Cellular transformation and induction processes, Toivonen.—Reaction of gastrula to implants of guinea pig liver etc. treated with rabbit immune sera, Vainio.—*T. v. vulgaris*, temperature preference, Freytag (3).

## SIRENIDAE

Ecology and world distribution, Wahlerl.

† *Prosiren* gen. nov. p. 449, type species *P. clinorae* sp. nov. pp. 449, 450, fig., from Trinity beds of Lower Cretaceous, Montague Co., Texas, Goin & Auffenberg.

*Pseudobranchius striatus*, on burrowing ability; S-shaped tubes descd., Freeman.—*P. s. belli*, of S. Florida; habitat, food and variation, Duellman & Schwartz.

† *Adelphesiren* gen. nov., type species *A. olivae* sp. nov. pp. 453, 454, figs., from Lance Formation, Upper Cretaceous, Niobrara Co., Wyoming, Goin & Auffenberg.

*Siren intermedia nettingi*, from brackish water Louisiana, Neill (2).—*S. lacertina*, Variation, habitat and stomach contents of S. Florida individuals, Duellman & Schwartz.—On burrowing habit; tunnels descd., Freeman.—From brackish water in Florida, Neill (2).

## ORDER ANURA

## ATELOPODIDAE

*Atelopus cruciger* ecology and breeding behaviour, Sexton.—*Atelopus stelnieri*, methods of keeping in captivity and general habits, Adler, J.

## BRACHYCEPHALIDAE

*Brachycephalus epihippium* sectioning technique for calcified skin, Griffiths & Carter.

*Dendrobates*, see under Dendrobatidae.

*Phyllobates*, see under Dendrobatidae.

## BREVICIPITIDAE see MICROHYLIDAE

## BUFONIDAE

Plates from Philippi's Batraquios Chilenos; discussion on status and synonymy of species, Cei (4).—E. North American species and subspecies descd. figd. (colour plates) and distinguished; distribution maps, Conant (2).

*Bufo*. Criteria for identification of larval *Bufo* variceps, *B. terrestris americanus*, *B. t. terrestris*, *B. woodhousei fowleri* and discussion on natural hybridization, Gosner & Black (2).

*Bufo alvarius*, on the degenerating condition of the vocal sac, Inger (1).—From N.W. Sonora, Smith & Hensley.

*Bufo americanus*, of E. Canada; zoogeography, Bleakney, J. S.—Of Cass Co., Minnesota, Brattstrom (1).—Of Lyon Co., Kansas, Clarke, Breukelman & Andrews.—*Bufo arenarum*, sperm elimination, Allende & Astrada.—Influence of diuretic hormones, Becerra.—Action of LH and FSH on spermiation, Burgos &

Houssay.—Behaviour, Gallardo (1).—Studies on sulphydryl groups in the brain, Lasansky & Sabatini.—Sperm inhibition by hormones, Moisset de Espanes.—Effect of adrenaline and noradrenaline and the Laeven Trendelenburg preparation, Nacimiento.—Castrated and treated with sex hormones, Penhos & Cardeza.—In Florida with notes on its introduction, Riemer (1).—Inorganic phosphate in nucleoli of oocytes, Tandler.—Seasonal variations in the action of antidiuretics, Uranga.

*Bufo asper*, from Thailand; photo., Taylor & Elbel.

*Bufo boreas*, irradiation of tissues and the subsequent effects, Allen.—Range in California; sympatric with *B. canorus*, Karlstrom.—*B. b. boreas*, from Baker Co., Oregon; note on habitat and breeding date, Ferguson, Payne & Storm.—*B. b. halophilus*, study of visual pigments during metamorphosis, Crescitelli.—*B. b. halophilus*, *B. b. boreas*, on daily cycle of activity, Mullally.

*Bufo bufo*, sensitivity to chorionic gonadotrophin, Allison.—Influence of thyroid hormone on mitotic activity of rhombencephalon, Baffoni.—Mitotic activity of spinal medulla during development, Baffoni & Pinacci.—Metamorphosis, Baldisserotto & Ugurgieri.—From Marseille, Berner.—Studies on germ cells in eggs, embryos and larvae, Blackler.—Notes on behaviour of large specimens; feeding on mice, Boettger.—Of Crimea, Chernov.—Activity of streptomycin on the development and differentiation of eggs and larvae, Chiuini.—Embryonic ribonucleic acids study, Coromaldi (2).—Population study of behaviour cycle; factors affecting spawning migration, Heusser (1).—Moulting behaviour, Heusser (2).—Trapping and experimental changes of habitat, Heusser (4).—Effect of synthetic lysine-vasopressin on adenylophysal activity, Jørgensen & Nielsen.—Cartilage tissue staining using indirect peroxidase reaction, Kawasaki.—Afferent fatigue and habituation after skin stimulation, Kuzka.—Active sodium transport by the isolated bladder, Leaf, Anderson & Page.—Utilization of lipids during embryonic development, Lernia.—Efferent fibres in the optic nerve and recovery of nerve after section, Maturana.—Pigmentation study, Meng.—Successive orthotopic limb grafts, Notarnicola.—Cortical change at fertilization in eggs, Osanai.—As host to limb bud implants from *B. viridis*, Perri (2).—Cytochrome oxidase and respiratory rate during larval development and metamorphosis, Petrucci.—Larvae and the effect of ultra violet light, Rostand (2).—Spawning and the environment, Rühmekorf (1).—Temperature selection by larvae, Rühmekorf (2).—Effect of light on spawning, Rühmekorf (3).—From Dernford Fen, Sharp.—Blood pressure and pressure pulses in arterial arches, Simons.—Studies on "double nucleus" in development; its role and frequency, Sirakami (1) & (2).—From N.W. Budapest; habitat, Szabo.—Cytological study, Ziemann.—*B. b. bufo*, effects of tryptoflavin on mitosis in tadpoles, Myer.—*B. bufo formosus*, fluorescent skin colours of the pterin type, Hama & Obika.—Metamorphosis and effect of hormones, Kobayashi.—Influence of temperature on energy-rich phosphate content of embryos, Moriaki.—Effect of boric acid on egg development, Takeuchi, T.—Split organiser induction of double embryos, Yamamoto.—*B. vulgaris [bufo] japonicus*, from Honshu, Japan, Alexander & Diener.—Enzymes in the retinal receptor cells, Yoshida (1).

*Bufo calamita*, of Marseilles, **Berner**.—On tracking down prey by smell; and yawning behaviour, **Heusser** (3).—In the neighbourhood of Warsaw, **Klekowski**.—Spawning and the environment, **Rühmekorf** (1).—Effect of light on spawning, **Rühmekorf** (3).

*Bufo c. camerunensis*, from Mt. Nimba; photo. Distinguished from *latifrons*, *tuberosus* and *regularis*. Range and habitat, **Guibé & Lamotte** (4).

*Bufo canorus*, range in California; sympatric with *B. boreas*, **Karlstrom**.—From Eldorado Co., California at 7,500 ft. *B. boreas*-like individual from 8,000 ft.; species may hybridize, **Mullally & Powell**.

*Bufo cognatus*, social behaviour in young; mass migration, **Bragg & Brooks**.—From N.W. Navajoa; range extension, **Smith & Chrapliwy**.—Of N.W. Sonora, **Smith & Hensley**.—Of S. Dakota, **Woodbury**.

*Bufo c. compactilis*, from Aguascalientes, **Smith & Chrapliwy**.

*Bufo debilis*, general description, **Lang** (1).—*B. d. kelloggi*, from Sinaloa; note on intergradation with *B. d. retiformis*. Hybrids from 33 mls. S.S.W. Navajoa, Sonora; range extension, **Smith & Chrapliwy**.—*B. d. retiformis*, range extension in Pima Co., Arizona, **Williams & Chrapliwy**.

*Bufo gardoensis*, ecology and variation, **Cherchi** (3).

*Bufo gargarizans*, changes in the histochemistry of the oviduct after egg laying, **Chu & Chin**.

*Bufo güntheri*, from Limbé, Haiti; breeding dates, call, sex dimorphism, size, **Lynn**.

*Bufo hemiophrys*, of S. Dakota, **Woodbury**.

*Bufo holdridgii*, photograph of type, **Taylor, E. H.** (1).

*Bufo horribilis*, of Colima, Mexico; distribution, **Duellman** (1).—Habitat in Gómez Farias region, Tamaulipas, **Martin**.

*Bufo kelaartii*, first description from Ceylon, **Kirtisinghe**.—Of Ceylon, **Morgan-Davies** (3).

*Bufo luetkenii*, of Costa Rica; photo., **Taylor, E. H.** (1).

*Bufo marinus*, ecology in the Philippine Islands, **Alcala** (1).—Effect of vasopressin on water uptake whilst in different hypotonic solutions, **Bentley** (1).—Effect of pituitrin on water transfer across the wall of the isolated urinary bladder, **Bentley** (2).—Loss of sodium from the skin when dehydrated, **Bentley** (3).—Distribution of inorganic phosphate in muscle, **Briner, Simon & Shaw**.—On introduction into New Guinea, **Brongersma**.—Blood system of the hypophysis, **Cruz**.—On occurrence near Miami and introduction into S. Florida, **Duellman & Schwartz**.—Investigation of fat, **Fromm**.—Habitat in Leticia, Colombia, **Goin & Layne**.—Moulting behaviour; fig., **Heusser** (2).—Active sodium transport b. the isolated bladder, **Leaf, Anderson & Page**.—Seasonal variations in drug sensitivity of the isolated heart, **Nayler**.—Note on ability to withstand saline conditions, **Neill** (2).—In Florida, with notes on its introduction, **Riemer** (1).—Chemical relationships in the sartorius muscle, **Simon, Shaw, Bennett & Muller**.—Extracellular potassium on intracellular heart action currents, **Trethewie & St. Clair**.

*Bufo marmoreus*, distribution in W. Mexico, **Duellman** (1).—From Jalisco, **Smith & Grant**.

*Bufo mazatlanensis*, of Jalisco; *B. nayaritensis* considered a synonym, **Smith & Grant**.

*Bufo melanochloris*, of Costa Rica; note on variation in specimens; photos., **Taylor, E. H.** (1).

*Bufo melanostictus*, induced metamorphosis of tadpoles, **Bhattacharya & Medda**.—Life history notes; photo., **Morgan-Davies** (3).—Study of male and female chromosomes, **Natarajan**.—From Malé, Maldives, **Phillips**.—From Thailand, **Taylor & Elbel**.

*Bufo microtympaum*, of Ceylon, **Morgan-Davies** (3).

*Bufo nayaritensis*, considered a synonym of *B. mazatlanensis*, **Smith & Grant**.

*Bufo occidentalis*, of Colima; distribution in W. Mexico, **Duellman** (1).

*Bufo paracnemis*, action of pitressine and adrenalin on water balance during and after metamorphosis, **Hadler, Berezin & Lison**.—On its introduction into Florida, **Riemer** (1).

*Bufo punctatus*, from late Pleistocene cave in Nevada, **Brattstrom** (3).—Habitat in Gómez Farias, Tamaulipas, **Martin**.—From N.W. Sonora, **Smith & Hensley**.—Of Glen Canyon, **Tanner**.

*Bufo quercicus*, of S. Florida; habitat, call, stomach contents, range. Preyed on by *Heterodon* and *Thamnophis*, **Duellman & Schwartz**.

*Bufo regularis*, from Mt. Nimba; photo.; habitat; larva descd. and figd., **Guibé & Lamotte** (4).—Origin of nucleoli in oocytes, **Guyenot**.—On abnormal urostyles, **Sedra**.—Metamorphosis and growth of the hypobranchial apparatus, **Sedra & Michael**.—Ontogenesis of vertebral column, **Sedra & Moursi**.—Response to pituitrin injection on fluid distribution, **Wilson & Archdeacon**.—*B. r. regularis*, Population study of movement and growth; reproduction, breeding dates, food, **Chapman & Chapman**.—From Inyanga district, S. Rhodesia, **Fitzsimons**.

*Bufo rubropunctatus*, distribution and colour, **Capurro** (1).

*Bufo spinulosus*, distribution, **Capurro** (1).

*Bufo stomaticus*, of Ceylon, **Morgan-Davies** (3).

*Bufo superciliaris* from Mt. Nimba; photo. Habitat, primary forest, **Guibé & Lamotte** (4).

*Bufo terrestris*, on its introduction into Florida, **Riemer** (1).—*B. t. americanus*, on geographic relations of Ozarkian amphibians, **Dowling**.—Of Piedmont, coastal Delmarva, **Reed** (3).—Of S. Dakota, **Woodbury**.—*B. t. charlesmithi*, eggs descd. and compared with those of other *terrestris* subsp., **Bragg** (2).—*B. t. terrestris*, habitat in S. Florida; variation; food, **Duellman & Schwartz**.—*B. t. terrestris*, *B. t. copei*, *B. t. americanus*, larval characters, distribution; discussion on isolating mechanisms, **Gosner & Black** (2).—*B. t. terrestris*, from Grants cave, Florida, **Holman** (3).

† *Bufo tiheni* sp. nov. p. 14, Middle Pliocene, Alachua formation, Haile VI, A (SW ¼ Sec. 24, T95, R18E), near village of Haile Alachua Co., Florida, Sacral vertebra and ilium figd., **Auffenberg**.

*Bufo typhonius*, habitat at Leticia, Colombia, Goin & Layne.

*Bufo valliceps*, cranial morphology, Baldanf (1).—Larval characters; hybrid inviability partial isolation mechanism in *fowleri* × *valliceps*, Gosner & Black (2).—Habitat and breeding dates in Gómez Farias, Tamaulipas Martin.

*Bufo variegatus*, distribution, Capurro (1).

*Bufo viridis*, of Crimea, Chernov.—Diminution in dipeptidase activity by X-ray irradiation, Coromaldi (1).—On occurrence in N. Kizil Kum, Krivosheev.—Limb buds implanted in *B. bufo*, Perri (2).—On occurrence in Transcaucasia, Rotter.—Spawning and the environment, Rühmekorf (1).—From N.W. Budapest; habitat, Szabo.—Comparative study of the effect of HCG dissolved in various solvents on the discharge of sperm, Lunenfeld, Rabau, H-Steinberg & Seelberg.

*Bufo woodhousei*, of Lyon Co., Kansas; habitat, Clarke, Breukelman & Andrews.—*B. w. fowleri*, of Long Point, Ontario, Adams & Clark.—Larval characters discussion of isolating mechanisms preventing hybridization with *B. t. americanus*, Gosner & Black (2).—*Bufo woodhousei*, of Union Co., Oregon, Ferguson, Payne & Storm.—Of S. Dakota, Woodbury.—*B. w. fowleri*, on geographic relations of Ozarkian amphibians, Dowling.—*B. w. woodhousei*, on geographic relations of Ozarkian amphibians, Dowling.—Of Glen Canyon, Tanner.

*Nectophrynoides occidentalis* from Mt. Nimba. Reproduction and life history desc.; photo., figs. Key to distinguish from *N. vivipara* and *N. tornieri*, Guibé & Lamotte (4).—*N. occidentalis*, thyroid development during metamorphosis studied quantitatively, Lamotte & Frum.—Development of the ovary, Lamotte & Rey.

*Pedostibes rugosus* sp. nov., p. 476, from Menuang, headwaters of Baleh R., Sarawak; fig. Distinguished from *P. hosi*, Inger (2).

*Rhinophrynus dorsalis*, habitat in Gómez Farias, Tamaulipas, Martin.

#### HYBRIDS

*Bufo fowleri* × *B. terrestris*, on interspecific gene exchange in S.E. Louisiana, Volpe.—*Bufo bufo* ♀ × *Rana temporaria* ♂, Hertwig, Weiss & Ziemann.

#### CENTROLENIDAE

Discussion of systematic position and diagnostic characters of the three genera (*Centrolene*, *Teratohyla* and *Cochranella*) recognised; figs., Eaton.—Costa Rican species discussed; distribution notes; Key. Species recognised and described:—*Centrolene prosoblepon* (photo.): *Teratohyla spinosa* (photo.): *Cochranella pulverata*, (photo.) *C. albomaculata*, (photo.) *C. granulosa* (photo.), *C. decorata* sp. nov. p. 50, photo., from Hda. La Florencia, 3 mls. W. of Turrialba, Cartago Prov., *C. millepunctata* sp. nov. p. 53, photo., La Palma, San José Prov., *C. fleischmanni*, (photo.), *C. chrysops* (photo.), *C. chirripoi* sp. nov. p. 59, photo, Cocales Creek, Suretka, Limón Prov., *C. reticulata* sp. nov. p. 61, photo., near Inter American Institute of Agric., Turrialba, Cartago Prov., *C. valerii*, *C. talamancae* (photo.), *C. colymbiphylum* (photo.), Taylor, E. H. (2).

VOL. 96

*Centrolene prosoblepon*, anatomical study; figs., and photos., Eaton.

#### DENDROBATIDAE

*Dendrobates auratus*, *D. typographicus* (photo.), of Costa Rica, Taylor, E. H. (1).—*D. graniferus* sp. nov. p. 10, photo., from low mountains N. of Río Diquis, approx 3 mls. N. of Palmar, Puntarenas Prov., Costa Rica; distinguished from *D. typographicus*, Taylor, E. H. (1).—*D. pictus*, from Amazonas, Colombia; colour in life; photo., Goin & Layne.—*D. machadoi*, sp. nov. p. 73, Serra do Navio, Fed. Terr. Amapá, Brazil, figs.; related to *D. trivittatus*, Bokermann (2).

*Phyllobates femoralis*, from Leticia, Colombia; colour in life, Goin & Layne.

#### DISCOGLOSSIDAE

*Alytes obstetricans boscai* and *A. cisternasi* from Majorca, Balearic Islands, Colom.—*A. obstetricans*, limb regeneration experiments, Lecamp.—Rearing conditions, Wettstein.—Comparative cytology, Ziemann.

*Bombina bombina*, diet studies, Lác.—Distribution south of Cracow, variation in coloration, Michalowski.—From N.W. Budapest; habitat, Szabo.—*B. variegata*, origin of nucleoli in oocytes, Guyenot.—Trapping and experimental removal from normal territory, Heusser (4).—Distribution south of Cracow, variation in coloration, Michalowski.—Spawning and environmental factors, Rühmekorf (1).—*Bombinator pachypus* [*B. v. pachypus*], lens induction, Jacobson.

*Discoglossus* sp., appearance of glycogen in larval liver tissue, Bellec (2).—*D. pictus*, pigmentation experimental analysis, Bedate.—From the Balearic Islands, Colom.—Intraperitoneal injections of reserpine, Liébecq-Hutter & Baq.—Larval incompatibility on grafting, Rossi.

#### HYLIDAE

Call difference as an isolation mechanism in Florida species of hylid frogs, Blair (3).—E. North American species and subspecies desc., figd. (colour plates) and distinguished, Conant (2).—Maxillary dentition of some hylids, Goin, C. J. (2).

*Acris crepitans*, population size, movement and behaviour of a population in Texas, Pyburn.—*A. gryllus* on the call with sonagram p. 42, Blair (3).—Habitat in Lyon Co., Kansas, Clarke, Breukelman & Andrews.—On geographic relations of Ozarkian amphibians, Dowling.—Ecology, Geyer, H. (2).—From Jackson Co., Michigan, Hahn, D. E.—From E. Missouri cave, Myers (3).—*A. g. blanchardi*, *A. g. crepitans*, *A. g. dorsalis*, tooth count, Goin, C. J. (2).—*A. g. dorsalis*, of S. Florida. Note on food, predators range, pattern variation, Duellman & Schwartz.—*Acrotydes* Fitzinger, 1843 generic name suppressed, Opinion 520.

*Agalychnis dacnicolor*, of Colima and W. Mexico, Duellman (1).—*A. d. A. helenae*, maxillary dentition, Goin, C. J. (2).

*Flectonotus goldii*, brooding young, Oeser.

*Gastrotheca marsupiata*, life history in captivity, Grenard.—*G. oviferum*, maxillary dentition, Goin, C. J. (2).

*Hyla*. Discussion and tabulation of maxillary dentition in various species, **Goin, C. J. (2).**

*Hyla alleni*, from Leticia, Colombia; colour and habitat, **Goin & Layne.**

*Hyla alvaradoi*, of Costa Rica; note on habitat and colour; photo., **Taylor, E. H. (1).**

*Hyla arborea*, from Marseilles, **Berner.**—Of Crimea, **Chernov.**—Larval grafts, **Rossi.**—Spawning habits, **Rühmekorf (1).**—From N.W. Budapest; habitat, **Szabo.**—*H. a. japonica*, from Honshu and Shikoku, Japan, **Alexander & Diener.**—Hatching glands, **Yanai & Takayanagi.**

*Hyla arenicolor*, distribution in the U.S.A., map p. 456, **Blair (1).**—Of Glen Canyon, **Tanner.**

*Hyla baudini*, of Colima and W. Mexico, **Duellman (1).**—*Smilisca baudini*, habitat and breeding times in Gómez Farias region, Tamaulipas, **Martin.**

*Hyla boulengeri*, of Costa Rica; photo., **Taylor, E. H. (1).**

*Hyla cinerea*, photograph, **Anon (3).**—Note on response of ♀ to call of ♂, **Blair (2).**—Call discussed, sonagram p. 42, **Blair (3).**—Figured with sonagram p. 187, **Bogert.**—On geographic relations of Ozarkian amphibians, **Dowling.**—Pattern variation of S. Florida individuals. Note on food, breeding, habitat. Includes *H. evittata* Miller, **Duellman & Schwartz.**—Nonbreeding habits compared with *H. squirella*, **Goin, O. B.**—On occurrence in saline water, **Neill (2).**—*H. c. cinerea* × *evittata*, from Kent Co., Delaware, **Conant (1).**

*Hyla crucifer*, discussion of the call, sonagram p. 36, **Blair (3).**—Of Cass Co., Minnesota, **Brattstrom (1).**—On geographic relations of Ozarkian amphibians, **Dowling.**—Ecology, **Geyer, H. (2).**—*H. c. crucifer*, of E. Canada; zoogeography, **Bleakney, J. S.**

*Hyla dominicensis*, from Limbé, Haiti; size; sex dimorphism; colour variation; glandular secretion, **Lynn.**

*Hyla dulcensis* sp. nov. p. 37, photo., Golfito, Puntarenas Prov., Costa Rica; related to *H. eleachroa*, **Taylor, E. H. (1).**

*Hyla eleachroa*, of Costa Rica; photo. Related to *H. dulcensis*, **Taylor, E. H. (1).**

*Hyla evittata*, considered a synonym of *H. cinerea*, **Duellman & Schwartz.**

*Hyla eximia*, habitat in Gómez Farias region, Tamaulipas, **Martin.**—*H. wrightorum*, from Cocconino Co., 8,000 ft., Arizona, **Williams & Chapliwy.**

*Hyla faber*, colour photograph p. 149, **Stettler.**

*Hyla femoralis*, distribution in the U.S.A., map p. 456, **Blair (1).**—Call discussed, sonagram p. 34, **Blair (3).**—Ecology and breeding in S. Florida; food; pattern variation, **Duellman & Schwartz.**

*Hyla foliamorta* sp. nov. p. 125, 7 mls. N.W. Miraflores Locks, Canal Zone, photo. Related to *H. boulengeri*, *H. acuminata* and *H. proboscidea*, **Fouquette.**

*Hyla gabbi*, of Costa Rica; photo., **Taylor, E. H. (1).**

*Hyla gilleni*, of C. Australia; photo., **Mertens (4).**

*Hyla gratiosa*, on New Jersey population, **Black & Gosner.**—Call discussed sonagram p. 36, **Blair (3).**—Figured with sonagram p. 187, **Bogert.**—Of S. Florida. Note on pattern variation, ecology and range, **Duellman & Schwartz.**—Note on arboreal and fossorial habits and variety of call, **Neill (3).**—From White Co., Tennessee, **Rossman (1).**

*Hyla infrafronata*, of New Guinea; fig., **Brongersma.**

*Hyla japonica*, first record from Mongolia, **Bannikov.**

*Hyla lanciformis*, from Leticia, Colombia; distinguished from *H. albopunctatum* and *H. spegazzini*. Call and habitat descd.; photo., **Goin & Layne.**

*Hyla laynei*, from Leticia, Colombia; call, habitat and colour descd.; **Goin & Layne.**

*Hyla legleri* sp. nov. p. 33, photos., approx. 15 km. W.S.W. San Isidro del General, San José Prov., Costa Rica; related to *H. nigripes*, **Taylor, E. H. (1).**

*Hyla leucophyllata*, from Leticia, Colombia; note on call, habitat, sex difference, colour, **Goin & Layne.**

*Hyla maxima*, probably largest tree frog (5" body length); photograph, **Anon (4).**—Habitat in Leticia Colombia; call and colour descd., Note on validity of name, **Goin & Layne.**

*Hyla membranacea*, from Leticia, Colombia. Call, habitat and colour descd., **Goin & Layne.**

*Hyla m. microcephala*, first record from Costa Rica; photo. Distinguished from *H. underwoodi* and *H. phlebodes*, **Taylor, E. H. (1).**

*Hyla miotypanum*, habitat and range in Gómez Farias region, Tamaulipas, **Martin.**

*Hyla misera*, from Leticia, Colombia; note on call, habits, habitat and colour, **Goin & Layne.**

*Hyla monticola*, from Costa Rica; redescd. Type lost. Photograph, **Taylor, E. H. (1).**

*Hyla ocularis*, call discussed, sonagram p. 40, **Blair (3).**

*Hyla phaeocrypta*, call discussed, sonagram p. 34, **Blair (3).**

*Hyla phaeota cyanosticta*, of Chiapas; colour in life note, **Poglayen & Smith.**

*Hyla picadoi*, of Costa Rica, **Taylor, E. H. (1).**

*Hyla pickeringi*, ecology, **Geyer, H. (2).**

*Hyla pseudopuma*, of Costa Rica; note on colour variation; photos., **Taylor, E. H. (1).**

*Hyla pulchrellineata*, of Haiti; call descd.; colour in life, **Lynn.**

*Hyla punctata*, from Leticia, Colombia; colour, call and habitat descd.; photo., **Goin & Layne.**

*Hyla regilla*, study of visual pigments during metamorphosis, **Crescitelli.**—Habitat in Baker Co., Oregon, **Ferguson, Payne & Storm.**—From Pine Mt. 3954 ft, San Luis Obispo Co., California, **Pimentel (2).**—Development of sympathetic ganglia, **Triplett.**—Anatomy and cytology of the hypothalamic neurosecretory system, **Wilson, Weinberg & Bern.**

*Hyla rubella*, of C. Australia; photo., Mertens (4).

*Hyla rubra*, from Leticia, Colombia; colour, call, habits descd., Goin & Layne.

*Hyla sarayacuensis*, from Leticia, Colombia. Note on colour, sex dimorphism and habitat; distinguished from *leucophyllata*, Goin & Layne.

*Hyla septentrionalis*, call discussed, sonagram p. 42, Blair (3).—Of S. Florida. Note on pattern variation, ecology, food. Larva descd. and figd., Duellman & Schwartz.—Breeding in brackish pools in Florida Keys, Neill (2).

*Hyla smithi*, of Colima and W. Mexico, Duellman (1).

*Hyla spilomma* Cope, 1877, specific name as published in the above combination to be placed on Official List of specific names, Opinion 520.

*Hyla squirella*, Kentucky record incorrect, Barbour.—Call discussed, sonagram p. 36, Blair (3).—Of S. Florida. Notes on variation, food, ecology, call, Duellman & Schwartz.—Nonbreeding habits compared with *H. cinerea*, Goin, O. B.—From Houston Co., Georgia, Goodman.

*Hyla stauferi*, colour, call and habitat of Gómez Farias, Tamaulipas individuals, Martin.

*Hyla tibiatrix* Laurenti, 1768, specific name suppressed as published in the above combination, Opinion 520.

*Hyla versicolor*, call discussed, sonagram p. 40, Blair (3).—Discussion on mating call in speciation; geographic variation in call, Blair (4).—Taxonomic status in Oklahoma. Distribution and characters of *H. v. versicolor* and *H. v. chrysoscelis* discussed, Bragg, (3).—Of Cass Co., Minnesota, Brattstrom (1).—Habitat in Lyon Co., Kansas, Clarke, Breukelman & Andrews.—On geographic relations of Ozarkian amphibians, Dowling.—Mating behaviour, Littlejohn (2).—*H. v. versicolor*, of E. Canada; zoogeography, Bleakney, J. S.

*Hyla zeteki*, of Costa Rica, Taylor, E. H. (1).

*Hyla zonata* Spix, 1824, specific name published in the above combination is rejected, Opinion 520.

*Limnaeodius ocellaris*, habitat in S. Florida, Duellman & Schwartz.—From Chatahoochee Co., Georgia, Goodman.—On occurrence near brackish ditches, Neill (2).

*Nyctimystes* generic diagnosis, key to component species, maps, figs. Component species:—*avocalis* sp. nov. p. 6, E. side Goodenough I., D'Entrecasteaux Group, Papua, fig.: *daymani* sp. nov. p. 8; fig., N. Slope Mt. Dayman, Papua: *fuwatilis* sp. nov. p. 11, fig., Bernhard Camp, Idenburg R., Netherlands New Guinea: *granti*: *gularis* (humerus ♂ figd.): *kubori* sp. nov. p. 18, fig., Kubor Mts., near Kup, 5,000–8,000 ft., N.E. New Guinea: *montana*: *narinosa* sp. nov. p. 26, fig., Mt. Hagen, Wahgi Valley region of N.E. New Guinea, over 8,000 ft.: *papua*: *perimetri* sp. nov. p. 31, fig., 830–1170 ft., W. slope of Mt. Riu, Tagula I., Louisiade Archipelago, Papua: *persimilis* sp. nov. p. 34, fig., N. slope of Mt. Dayman, Papua: *rupepelli* (transferred from *Hyla*): *semipalmata* (foot and leg figd.): *humeralis* (includes *Hyla humeralis* Blgr.). The following species are trans-

ferred to *Hyla*:—*amboinensis*, *darlingtoni*, *loveridgei*, *thesaurensis*. Pattern of palpebral venation as one of diagnostic characters; figs., Zweifel (2).

*Phrynohyas* Fitzinger, 1843 (type sp.: *Rana venulosa* Laurenti, 1768) generic name accepted, Opinion 520.—*P. inflata*, of Colima and W. Mexico, Duellman (1).—*P. spilomma*, of Gómez Farias region, Tamaulipas, Martin.—*P. zonata*, maxillary dentition, Goin, C. J. (2).—From Leticia, Colombia; note on variation from Trinidad form, call and glandular secretion, Goin & Layne.

*Phyllomedusa bicolor*, *P. burmeisteri*, maxillary dentition, Goin, C. J. (2).—*P. bicolor*, from Leticia, Colombia; note on colour, habits, song and glandular secretion, Goin & Layne.

*Pseudacris brachyphona*, *P. brimleyi*, *P. clarki*, *P. nigrita* (and subspecies), *P. ornata*, *P. streckeri*, maxillary dentition, Goin, C. J. (2).—*P. brimleyi*, life history, figs., Gosner & Black (1).—*P. clarki*, *P. nigrita*. Habitat in Lyon Co., Kansas, Clarke, Breukelman & Andrews.—*P. clarki*, *P. nigrita*, late breeding activity (September) after heavy rainfall in Harris Co., Texas, Kennedy.—*P. nigrita*, call discussed, sonagram p. 40, Blair (3).—On geographic relations of Ozarkian amphibians, Dowling.—Of Union Co., Oregon, Ferguson, Payne & Storm.—Reproductive behaviour and the importance of vocalization, Martof & Thompson.—*P. n. feriarum*, ecology, Geyer, H. (2).—*P. n. triseriata*, of E. Canada; zoogeography, Bleakney, J. S.—From 8,000 ft., Coconino Co., Arizona, Williams & Chrapliwy.—Hormonal influence on sex differentiation, Witschi, Foote & Chang.—*P. n. verrucosa*, ecology in S. Florida; food—ants, beetles, Duellman & Schwartz.—On occurrence in halophytic grasses, Neill (2).—*P. ornata*, map of distribution in the U.S.A., p. 455, Blair (1).—Call discussed, sonagram p. 34, Blair (3).—From Fort Benning, Georgia. Locality records for Upper Coastal Plain, Goodman.—*P. streckeri*, distribution in the U.S.A., map p. 455, Blair (1).—*P. streckeri*, *P. nigrita*, on call variation. Call races of *nigrita* tend to correspond to morphological races, Blair (4).—*P. streckeri*, on geographic relations of Ozarkian amphibians, Dowling.

*Pternohyla fodiens*, of Colima and W. Mexico, Duellman (1).

*Smilisca*, see under *Hyla*.

*Sphoerohyla aurantiaca*, habitat and colour of Leticia Colombia specimens; distinguished from *S. dorisae*, Goin & Layne.—*S. aurantiaca*, *S. habra*, *S. nana*, maxillary dentition, Goin, C. J. (2).—*S. dorisae*, habitat in Leticia, Colombia; colour descd., Goin & Layne.—*S. habra*, from Leticia, Colombia; habitat, call and colour descd., Goin & Layne.—*S. seabrai* sp. nov. Serra do Navio, Federal Territory of Amapá, Brazil, p. 43, figs. Related to *S. orophila* and *S. habra*, Bokermann (1).

#### HYBRIDS

*Hyla gratiosa* × *cinerea* figure and sonagram of hybrid, p. 187, Bogert.

#### HYPEROLIIDAE

References at present retained under RHACOPHORIDAE.

## LEPTODACTYLIDAE

Plates from Philippi's *Batraquios* Chileno; discussion of status and synonymy of species, **Cei** (4).

*Batrachyla leptopus*, distribution and ecology, **Capurro** (1).

*Calyptocephalella gayi*, distribution, **Capurro** (1).

*Orinia*. Theory of evolution of the species, **Main, Lee & Littlejohn**.—*C. sloanei*, sp. nov., p. 225 from S. bank of Murray R., by main traffic and railway bridge adjacent to Tocumwal on Murray, N.S.W. Grouped with *C. insignifera* superspecies and sympatric with closely related *C. signifera* and *C. parinsignifera*, **Littlejohn** (1).

*Eleutherodactylus*. Technique for sectioning ovaries and eggs, **Griffiths & Carter**.—*Eleutherodactylus* of Cuba believed to be divisible into five groups:—*auriculatus*, *varleyi*, *ricordi*, *dimidiatus*, *symingtoni*. *E. zeus*, sp. nov. p. 38, photo., 0.5 mls. S. of San Vicente Pinar del Rio Province, Cuba; affinities discussed, **Schwartz** (2).—*E. abbotti*, of Haiti; colour pattern, **Lynn**.—*E. augusti*, *E. hidalgoensis*, of Gómez Farias region Tamaulipas; habitats and range. Note on stomach contents of *hidalgoensis*, **Martin**.—*E. a. augusti*, from S.E. Coahuila, **Webb**.—*E. augusti fuscescens*, *E. a. latrans*, from Coahuila; discussion on absence of clinal characters, **Webb**.—*E. auriculatus*, Cuban members of this species group discussed. Recognised:—*E. a. auriculatus*, *E. a. varians*, *E. sonans*, *E. eileenae* and *E. a. olivaceus* subsp. nov. p. 72, Cueva del Cable, San Vicente, Pinar del Rio Province, Cuba, photo. Distinguished from *E. a. varians* (photo.) and *E. a. auriculatus*. *E. gehrmanni* considered a synonym of *E. eileenae*, **Schwartz** (1).—*E. dimidiatus amelaema* subsp. nov. p. 12, San Vicente, Pinar del Rio Prov. Cuba; *E. etheridgei* sp. nov. p. 16, photo., near Guantanamo Bay, Oriente Prov. Cuba, (of the *ricordi* group); *E. gehrmanni* sp. nov. p. 4, photo., San Vicente, Pinar del Rio Prov. (of the *auriculatus* group); *E. physelus* sp. nov. p. 7, photo., 4-4 mls. N.W. Vicente, Pinar del Rio Prov., Cuba (of the *dimidiatus* group), **Schwartz** (4).—*E. inoptatus*, from near Limbé, Haiti; colour, **Lynn**.—*E. monnichorum*, first record from Costa Rica; note on variation from typical form; photo., **Taylor, E. H.** (1).—*E. occidentalis*, of Colima; distribution in W. Mexico, **Duellman** (1).—*E. pictiesimus* from near Port-au-Prince, Haiti, **Lynn**.—*E. poolei*, from near Milot, Haiti; colour, **Lynn**.—*E. ricordi planirostris*, of Florida Keys; habitat, range, pattern variation, **Duellman & Schwartz**.—*E. schmidti limbensis* subsp. nov. p. 155, approx. 3 mls. S.W. of Limbé, Haiti, **Lynn**.—*E. taurus* sp. nov., p. 17, photo., Golfito, Puntarenas Prov., Costa Rica; related to *E. fleischmanni*, **Taylor, E. H.** (1).—*E. vocalis*, of Colima; note on variation and distribution in W. Mexico, **Duellman** (1).—*E. zugi* sp. nov. p. 127, photo., Soroa, Pinar del Rio Prov., Cuba. Related to *E. gundlachi* and *E. atkinsi* of the *ricordi* group, **Schwartz** (3).

*Eupsophus bibróni*, *E. calcaratus*, *E. coppingeri*, *E. grayi*, *E. hidalgoi*, *E. kriegi*, *E. maculatus*, *E. nodosus*, *E. taeniatus*, *E. verrucosus*, distribution in Chile; ecology, **Capurro** (1).—*E. taeniatus*, development, **Capurro** (2).—Biology and development, figs., **Cei & Capurro**.

*Heleioporus*, comparison with *Neobatrachus* of ability to take up water in response to dehydration,

**Bentley, P. J. et al.**—*Heleioporus*, five species recognised:—*australiacus*, *albopunctatus*, *psammophilus*, *eyrei* and *inornatus*. Discussion on ecology, distribution and evolution, **Main, Lee & Littlejohn**.—*H. sudelli*, considered a synonym of *H. pictus*. Specimens from St. George, S.W. Queensland. Relationship in *pictus-centralis-pelobatoides* complex discussed, **Hosmer**.

*Hyella azteca*, of Colima; note on habits, a terrestrial hydrid breeding in rocky streams and not a bromeliad dweller, **Duellman** (1).

*Hydrolas hylaeformis* Melin, name preoccupied by Cope's *Phyllobates hylaeformis* New name *melini* proposed as substitute, **Bokermann** (3).

*Hyllorina sylvatica*, distribution and ecology, **Capurro** (1).

*Kyarranus* gen. nov. p. 3; a cycloranine related to *Limnodynastes* but differs from it and related genera in embryology and in pre-sacral vertebrae. Type species designated, *K. sphagniculus*, sp. nov. p. 4, from 5,000 ft. Point Lookout, near Ebor, New South Wales; photos. Genus also includes *K. loveridgei* (*Philoria loveridgei* Parker, *P. frosti* Loveridge), **Moore** (2).

*Lechridodius*, larvae made into stew and eaten by natives, **Brongersma**.

*Lepidobatrachus asper*, geographic isolation and phenotypic constitution of La Rioja and Grand Chaco populations, **Cei** (2).

*Leptodactylus*, isolation of leptodactylina from the skin, **Ersapamer**.—*L. hylaedactylus*, habitat at Leticia, Colombia; note on call and method for collecting specimens, **Goin & Layne**.—*L. i. intermedius*, from Leticia, Colombia; distinguished from *podicipinus*; Call, habits and colour, **Goin & Layne**.—*L. labialis*, *L. melanonotus*, habitats in Gómez Farias region, Tamaulipas, **Martin**.—*L. melanonotus*, distribution in W. Mexico, **Duellman** (1).—*L. ocellatus* blood system in the hypophysis, **Cruz**.—Behaviour; cannibalism, feeding habits, defense, **Gallardo** (1).—*L. p. pentadactylus*, habitat and habits in Leticia, Colombia, **Goin & Layne**.—*L. podicipinus*, from Leticia, Colombia; note on colour, **Goin & Layne**.—*L. prognathus*, biology, **Gallardo** (2).—*L. rubido*, from Leticia, Colombia, **Goin & Layne**.

*Limnodynastes dorsalis*, variations in larval development, **Ormsby**.

*Mixophyes fasciolatus* on delayed metamorphosis, **Ormsby**.

*Myobatrachus gouldii*, and its associations with termite colonies, **Philipp**.

*Neobatrachus*, comparison with *Heleioporus* of water uptake after dehydration, **Bentley, P. J. et al.**—*N. pictus*, *N. pelobatoides*, *N. centralis*, *N. wilmorei*, distribution, ecology and evolution, **Main, Lee & Littlejohn**.

*Paratelmatobius* gen. nov. p. 241, type species *P. lutzii* sp. nov. p. 241, (photos); figs., osteological characters) from Brejo da Lapa, Alto Itatiaia, state of Rio de Janeiro, Brazil (22°24'S : 44°55'W : 2100 m.). Related to *Cyclorhamphus*, *Telmatobius* and *Batrachophrynus*. *P. pictiventris* sp. nov. p. 239 from Serra da Bocaina, Parahyba valley, **Lutz & Carvalho**.

*Philoria frosti*, *P. loveridgei* transferred to *Kyarra-nus*; figs., **Moore** (2).

*Pleurodema bibroni*, *P. bufonina*, distribution; notes, **Capurro** (1). — *P. bibroni*, sexual warning vibration, **Cei & Aguilera**.—Population variability and phenotypic distribution; statistical analysis, **Cei** (1).

*Syrrophus*, key to forms in W. Mexico, descriptions and figures. *S. m. modestus* (colour, call, range, photo.): *S. m. pallidus* subsp. nov. p. 5, San Blas, Nayarit, photo.: *S. rubrimaculatus*, range: *S. leprus*, notes on relationships, colour, call and range; photo.: *S. p. pipilans*, note on colour, call and range; photo.: *S. p. nebulosus*, characters and range: *S. interorbitalis*, note on colour and range: *S. teretistes* sp. nov. p. 10, photo., 3 mls. N.W. Tepic, Nayarit ( $\pm 2950$  ft.). Relationships of species discussed, **Duellman** (2). — *S. cystignathoides*, *S. latodactylus*, *S. smithi*, habitats in Gómez Farias region, Tamaulipas, **Martin**. — *S. modestus*, of Colima; call desc.; note on habitat and distribution, **Duellman** (1).

*Telmatobius hauthali schreiteri*, somatic variation in larvae desc.; dwarf form desc., figs., **Pisanó**. — *T. laevis*, *T. marmoratus*, *T. halli*, *T. montanus*, *T. peruvianus*, distribution and ecology in Chile, **Capurro** (1). — *T. bullocki*, of Chile, **Capurro** (1).

*Tomodactylus petersi*, of Colima and Tecolapa; call desc.; note on distribution in W. Mexico, **Duellman** (1).

#### MICROHYLIDAE

*Asterophrys turpicula*, of New Guinea; note on predation on large lizards, **Brongersma**, **L. D.**

*Breviceps adersensis*, from Inyanga district, S. Rhodesia, **Fitzsimons**.

*Gastrophryne carolinensis*, From E. Chesapeake Bay, **Conant** (1). — *Microhyala carolinensis*, from Pleistocene Saber-tooth cave, Florida, **Holman** (1). — On ant feeding behaviour, **Holman & Campbell**. — *Gastrophryne carolinensis*, on occurrence on *Salicornia* flat in Florida and in other brackish habitats, **Neill** (2). — *M. c. carolinensis*, on geographic relations of Ozarkian amphibians, **Dowling**. — *G. c. carolinensis*, of S. Florida. Notes on variation, call, ecology and food, **Duellman & Schwartz**. — *M. carolinensis olivacea*, habitat in Lyon Co., Kansas, **Clarke, Breukelman & Andrews**. — *M. c. mazatlanensis*, from Santa Cruz Co., Arizona, **Williams & Chrapliwy**. — *G. olivacea*, of Gómez Farias region, Tamaulipas, **Martin**. — *G. u. usta*, of Colima, **Duellman** (1).

*Glyptoglossus molossus*, from Thailand, photo., **Taylor & Elbel**.

*Hypopachus*. Key to Mexican species: — *caprimus*, *maculatus*, *alboventer alboventer*, *cuneus cuneus*, *cuneus nigroreticulatus*, *alboventer reticulatus*, *oxyrrhinus taylori* subsp. nov. p. 89, 3 mls. E. San Blas, Nayarit, fig., *oxyrrhinus ovis*, *oxyrrhinus oxyrrhinus*, Discussion on relationships and taxonomic status, **Shannon & Humphrey**. — *H. cuneus*, of Gómez Farias region, Tamaulipas, **Martin**. — *H. oxyrrhinus*, of Colima; distribution in W. Mexico, **Duellman** (1).

*Kaloula borealis*, origin, development and changes of the gills and lungs, **Giang & Li**. — *K. picta*, confirmed on Negros Island, **Alcala** (2). — *K. p. pulchra*, from Thailand, **Taylor & Elbel**. — *K. p. taprobanica*, tadpoles first description from Ceylon, **Kirtisinghe**.

*Microhyala berdmorei*, from Thailand, photo.; description, **Taylor & Elbel**. — *M. carolinensis*, see under *Gastrophryne carolinensis*.

*Ramanella obscura*, eggs, tadpoles, metamorphosis and ecology desc., photos., Note on dermal secretion, **Morgan-Davies** (2). — *R. palmata*, tadpole first description from Ceylon, **Kirtisinghe**.

*Sphenophryne*, technique for sectioning ovaries and developing eggs, **Griffiths & Carter**.

*Uperodon syntoma*, note on dermal secretion, **Morgan-Davies** (2). — Note on burrowing habits; photo., **Morgan-Davies** (3).

#### PELOBATIDAE

*Megophrys aceras*, *M. hasselti hasselti* (and photo.), from Thailand, **Taylor & Elbel**.

*Pelobates* discussion of evolutionary tendencies and phylogeny on basis of skull study. *Pseudopelobates* gen. nov. p. 1037, type species *P. transcasicus* (Delwig 1928). Skeletal characters of *Pelobates fuscus*, *P. syriacus* (and subspecies), *P. cultripes* and *P. varaldi* compared, **Pasteur** (2). — *P. cultripes*, from Marseilles; littoral, **Berner**. — Total sex reversal using oestradiol on larvae, **Gallien & Collenot**. — Mass numbers during wet weather at Canet (Pyr-Or), **Petit & Lomont**. — *P. fuscus*, of Crimea, **Chernov**. — Spawning habits, **Rühmekorf** (1). — From N.W. Budapest; habitat, **Szabo**.

*Pelodytes caucasica*, of Transcaucasia, **Rotter**. — *P. punctatus*, from Marseilles; habitat, **Berner**. — Production of intersex by oestradiol treatments, **Gallien & Collenot**. — Present in Luxembourg, **Hoffmann**.

#### PIPIDAE

*Pipa*, from Venezuela. Species desc.: — *P. pipa*, *P. parva*, key to distinguish, distribution map, notes on habitats, reproduction; photos., **Gines**.

*Xenopus*, effects of cytotoxic substances on embryos, **Waddington**. — *X. laevis*, melanophores, **Bagnara** (2). — Early gastrula transplants, **Balinsky**. — Effect of penicillin, streptomycin and penicillium mycelium on growth and development, **Ber & Zieloniewski**. —  $\beta$ -glucuronidase activity during early development of embryos, **Billett** (1). — Temperature effects on the electrocardiogram, **Biörck & Johansson**. — Studies on germ cells in eggs, embryos and larvae, **Blackler**. — Evocators and their diffusibility, **Brahma**. — Reaction of melanophores to hormones etc., **Burgers**. — Melanophore dispersing reaction as a pregnancy test, **Burgers & Mighorst**. — Disaggregation of gastrulae; and suggestion of a ribonucleoprotein on the cell surface, **Curtis**. — Visual mechanism and sensitivity, **Dartnall**. — Embryos, regional differences in catheptic activity, **Deuchar**. — Spectral absorption of the photopigment, **Dobrowolski, Johnson & Tansley**. — On a mutation reducing nucleolar number, **Elsdale, Fischberg & Smith**. — Nuclear transplantation, **Fischberg, Gurdon**

& **Elsdale**.—Influence of temperature on development, **Gerbes**.—Transplantation of somatic nuclei producing sexually mature individuals, **Gurdon**, **Elsdale** & **Fischberg**.—Supernumerary right arm, photo., **Hobson**.—Dorsal root ganglia and ventral horn, **Hughes** & **Tachumi**.—Forebrain regeneration in post metamorphic forms, **Jordan**.—Morphological study of labyrinth and middle ear, **Kahmann** & **Frettlöh**.—Regeneration power in postmetamorphic animals, **Konieczna-Marczyńska** & **Skowron-Cendrzak**.—Tadpoles, influence of the olfactory nerves on end brain regeneration, **Kosciuszko**.—Tadpoles, multiple regeneration of tails, **Kucias**.—Amino acid composition of skin-gelatin, **Leach**.—Influence of temperature on pulse rate, **Morawska** & **Zaleska**.—Blood sugar level relative to melanophore-expansion, **Munday**.—Response of lateralis organs to electrical stimulation by direct current, **Murray**.—*X. laevis*, thyroid activity and cyto-differentiation of anterior pituitary, **Saxén**.—Induction of triploidy, **Smith, S.**—*X. tropicalis*, from Mt. Nimba; photo. Distinguished from *X. fraseri*; ranges. Larva descd. and figd., **Guibé & Lamotte** (4).—From Harbel, Liberia, **Taylor** & **Weyer**.

# RANIDAE

**E. North American species and subspecies descd., figd. (colour plates) and distinguished; distribution maps, Conant** (2).

*Arthroleptis cruscum*, on morphology and direct development; nest below ground; figs., **Guibé & Lamotte** (2).

*Asiyloternus occidentalis*, from Mt. Nimba; photo. Note on habitat; larvae descd., **Guibé & Lamotte** (4).

*Cacosternum boettgeri*, early gastrula transplants, **Balinsky**.

*Cornufer guentheri*, first record from Negros Island, **Alcala** (2).

*Hemisus guttatum*, from Natal and Hluhluwe, **Wager** (2).—*H. marmoratum*, breeding habits and general ecology, **Wager** (2).—*H. marmoratum guineensis*, from Mt. Nimba; habitat; photo.; larva descd. and figd., **Guibé & Lamotte** (4).

*Micrixalus magnapustulosus* sp. nov. p. 1066, photo., Ban Na Phua, Kan Luang, Na Kae, Nakhon Phanom, Thailand, 200 m. approx., **Taylor & Elbel**.

*Nannophrys ceylonensis ceylonensis*, tadpole first description, **Kirtisinghe**.

*Ooeidozyga lima*, from Thailand; note on characters and habits, **Taylor & Elbel**.

*Petropedetes natator*, from Mt. Nimba; photo. Distinguished from *P. palmipes*. Note on habitat and range. Larva descd. and figd., **Guibé & Lamotte** (4).

*Phrynobatrachus francisci*, larval development; figs., **Lamotte & Drieduszycka**.—*P. maculiventris* sp. nov., pond in forest, near Doromou, French Guinea, p. 257, fig., **Guibé & Lamotte** (3).—*P. natalensis*, early gastrula transplants of presumptive ectoderm, **Balinsky**.—*P. ukingensis mababiensis*, from Nyamaziwa, S. Rhodesia, **Fitzsimons**.

*Phrynoglossus laevis martensi*, from Thailand; characters, **Taylor & Elbel**.

*Ptychadena* of the Cameroons. Key to and description and figures of the species:—*longirostris*, *aequiplicata*, *oxyrhynchus*, *superciliaris*, *mascareniensis*, *taenioscelis*, *bibroni*, *perreti* sp. nov. p. 1456, **Foulas**, Sangmelina, Fr. Cameroun (related to *P. grandisonae*), **Guibé & Lamotte** (1).—*P. longirostris*, from Uele, Belgian Congo, **Laurent** (2). For further references see under *Rana*.

*Pyzicephalus delalandii* and *P. adspersus*, presumptive ectoderm transplants, **Balinsky**.

*Rana* (*Ptychadena*) *aequiplicata*, from Mt. Nimba; habitat forest; photo., **Guibé & Lamotte** (4).—See also under *Ptychadena*.

*Rana* (*Conraua*) *alleni*, habitat in Mt. Nimba region. Larva descd. and figd. Photo., **Guibé & Lamotte** (4).

*Rana angolensis* [*R. fuscigula angolensis*] from Inyanga district, S. Rhodesia, **Fitzsimons**.

*Rana areolata*, habitat in Lyon Co., Kansas, **Clarke, Breukelman & Andrews**.—On geographic relations of Ozarkian amphibians, **Dowling**.—*R. areolata aescophus*, ecology in S. Florida, **Duellman & Schwartz**.

*Rana arvalis*, general notes; photo., **Duellman**.—Spawning and ecology, **Rühmekorf** (1).—Action of light, **Rühmekorf** (3).—Adenoma of the skin with cytoplasmic or nuclear inclusions, **Stolk** (1).

*Rana aurora*, development of sympathetic ganglia, **Triplett**.

*Rana* (*Ptychadena*) *bibroni* from Mt. Nimba; photo. Note on characters, affinities and range, **Guibé & Lamotte** (4).—See also under *Ptychadena*.

*Rana breviceps*, note on burrowing and nocturnal habits, **Morgan-Davies** (3).

*Rana capito*, from Saber tooth cave, Florida, **Holman** (2).

*Rana catesbeiana*, of Long Point, Ontario, **Adams & Clark**.—Irradiation of blood forming cells in the tadpole kidney, **Allen**.—Experimental control of guanophores, **Bagnara** (1).—of E. Canada; zoogeography, **Bleakney, J. S.**—In British Columbia, figured p. 62, **Carl & Guiguet**.—Retrograde reaction in motor neuron dendrites, **Cerf & Chacko**.—Fluid and electrolyte movement across the intestinal wall, **Chalfin, Cooperstein & Hogben**.—Habitat in Lyon Co., Kansas, **Clarke, Breukelman & Andrews**.—Stomach contents; growth rates, **Cohen & Howard**.—On geographic relations of Ozarkian amphibians, **Dowling**.—From Baker Co., Oregon, **Ferguson, Payne & Storm**.—Ovarian egg nucleic acids, **Finamore & Volkin**.—Larval gonads maintained on synthetic media, **Footo & Footo** (2).—In vitro cultivation of gonads, **Footo & Footo** (3).—From Jackson Co., Michigan, **Hahn, D. E.**—From Grants cave, Florida, **Holman** (2).—Blood oxygen capacity, **Leftwich**.—Regeneration experiments, **Schmidt, A. J.**—Tadpoles histological studies of corium, **Shimozawa**.

*Rana chalconota*, from Thailand, **Taylor & Elbel**.

*Rana chensinensis*, structure of the oesophagus; figs., **Eksaeva**.

*Rana clamitans*, from Long Point, Ontario, **Adams & Clark**.—Of E. Canada; zoogeography, **Bleakney, J. S.**—Of Cass Co., Minnesota, **Brattstrom** (1).—In British Columbia, figured p. 61, **Carl & Guiguet**.—Polydactylous juvenile, **Cooper**.—On geographic relations of Ozarkian amphibians, **Dowling**.—Water flow through the mucosal layer of the stomach, **Durbin, Frank & Solomon**.—Maintenance of gonads from second-year larvae, in different media, **Foote, C. L. & F. M.** (1).—On winter activities and habitats of larvae, **Getz**.—Injected with I<sup>131</sup>, **Kaye & Le Bourhis**.—Influence of various sound frequencies on respiratory movements, galvanic skin reflex and gastric hunger movements, **Kleerekoper & Sibabin**.—Blood oxygen capacity, **Leftwich**.—Regeneration after amputation, **Malinin & Deck**.—From E. Missouri cave, **Myers** (3).—Effects of adrenal transplants upon fore limb regeneration, **Schotté & Wilber**.

*Rana corrugata*, note on habits and habitat, **Morgan-Davies** (3).

*Rana cubitalis*, from Thailand; photo.; note on sex dimorphism and sex characters, **Taylor & Elbel**.

*Rana cyanophlyctis*, induced ovulation with mammalian hormones, **Ramaswami & Lakshman**.—*R. c. cyanophlyctis*, habits and call; photo., **Morgan-Davies** (3).

*Rana dalmatina*, sex differentiation, **Ancona**.—From Marseilles, **Berner**.—Combination of cells of degenerating pronephros in the formation of the female genital structures, **Cambar & Dechambe**.—Experiments on the development of the female genital opening, **Dechambe**.—Occurrence and general data from Sweden, **König**.—Spawning and ecology, **Rühmekorf** (1).—Tadpoles differentiation after treatment with thyroxine and methyl uracil, **Stefani**.—From N.W. Budapest; habitat, **Szabo**.

*Rana (Dicoglossus) occipitalis*, from Mt. Nimba. Note on habitat, coloration, larva (figured); photo., **Guibé & Lamotte** (4).

*Rana erythraea*, from Thailand; photo., **Taylor & Elbel**.

*Rana esculenta*, dorsal skin potentials, **Aguggini & Noseda**.—Sex differentiation, **Ancona**.—From stagnant waters, Marseilles, **Berner**.—Study of germ cells; eggs, embryos and larvae, **Blackier**.—Transplants with *Triturus*, **Bondi**.—Melanophore dispersing reaction as a pregnancy test, **Burgers & Mighorst**.—Oxygen lack and phosphorylation of glycogen in muscles, **Cordier & Duveau** (1).—Effect of oxygen lack on phosphorylation of liver glycogen, **Cordier & Duveau** (2).—Studies on liver glycogen, **Cordier, Duveau & Brandon**.—Diminution of dipeptidase activity by X-ray irradiation, **Coromaldi** (1).—Comparison with *Ambystoma mexicanum* of the ontogeny of respiratory vascularization, **Czopek**.—Visual purple absorption, **Denton & Wyllie**.—Ecology from the Carpathians of Slovakia, **Dudich**.—Rohon-Beard cells and their behaviour during development, **Filippio**.—Histotopographical study of the kidney, **Geyer, G.**—Mortality after insecticide dust on the banks of Lake Trasimeno, **Gianotti**.—Lens production in the absence of the retina, **Jacobson**.—Micro electrode studies of cerebellar electrical activity, **Joynt**.—Rhythmic heart potentials in the ventricle wall, **Lacquet**.—Secondary cerebral modifications, **Legait & Legait**.—Variations in respiratory quotient of the skin, **Locker**.

—Temperature influence on relation of liver tissue respiration to glycogen content, **Locker & Doneff**.—Origin and development of the pronephros and Wolffian duct, **Manelli** (1).—Inhibition of tadpole metamorphosis using streptomycin, **Marco**.—Influence of temperature on pulse rate, **Morawska & Zaleska**.—Electro retinograph study of different fields of perception, **Pilz, Sickel & Birke**.—Cutaneous vasomotor reflexes and respiration, **Poczopko**.—Variations in gut motivity throughout the year, **Pora & Rejcek**.—Polydactyly, **Rostand** (1).—Spawning and ecology, **Rühmekorf** (1).—Action of light, **Rühmekorf** (3).—Biosynthesis of phosphoprotein, **Sampath Kumar et al.**—Grafting experiments with *Triturus*, **Spirito & Bondi**.—Action potential dependence on temperature and metabolism in medullated nerves, **Stieve**.—Habitat in N.W. Budapest, **Szabo**.—Diet and feeding habits, **Tyler**.—Cannibalism of adults on young, **Vandevelde**.—Orientated gastrula section, **Wessing & Claes**.—Spinal reflexes, **Wittenberger & Fabian**.—Comparative cytological studies, **Ziemann**.

*Rana f. fasciata*, from Nyamaziwa, S. Rhodesia, **Fitzsimons**.

*Rana fusca*, determinations of bilateral embryonic symmetry, **Løvtrup**.—Adenoma of the skin, **Stolk** (1).—Early development, **Veit**.—Comparative cytological studies, **Ziemann**.

*Rana goliath*, general note on habits and habitat; photo., **Ferret** (3).

*Rana g. grayii*, from Inyanga district, S. Rhodesia, **Fitzsimons**.

*Rana grylio*, of S. Florida; call; food; ecology, **Duellman & Schwartz**.

*Rana hexadactyla*, habitat in Ceylon; colour, **Morgan-Davies** (3).

*Rana (Hylarana) albolabris*, from Mt. Nimba; photo.; range; sex dimorphism; habitat; larva deuced. and figd. Distinguished from *R. zenkeri*, **Guibé & Lamotte** (4).

*Rana (Hylarana) zenkeri*, from Mt. Nimba primary forest; photo. Distinguished from *albolabris*, **Guibé & Lamotte** (4).

*Rana ishikawae*, of Amami group, Loo Choo Is.; photos., **Koba**.

*Rana japonica*, from Honshu, Japan, **Alexander & Diener**.—Biology, **Geyer, H.** (1).—Sex reversal in thiourea-treated tadpoles, **Iwasawa** (2).—Cartilage tissue staining using indirect peroxidase reaction, **Kawasaki**.—Effect of hormones on metamorphosis, **Kobayashi**.

*Rana kuhlii*, from Thailand; photo., **Taylor & Elbel**.

*Rana limnocharis*, of Amami group, Loo Choo Is., **Koba**.—Effect of colchicine on early development, **Su & Tsai**.—*R. l. limnocharis*, *R. l. greenii*, of Ceylon; distinguished. Photo. of suspected hybrid, **Morgan-Davies** (3).—*R. l. limnocharis*, from Thailand; photo.; note on chest fold and sex characters, **Taylor & Elbel**.

*Rana (Ptychadena) longirostris*, from humid forest, Mt. Nimba; related to *R. christyi*; photo., **Guibé & Lamotte** (4).—See also under *Ptychadena*.

*Rana (Ptychadena) macarthysensis*, from Mt. Nimba, photo. Larva descd. and figd., Guibé & Lamotte (4).—*R. macarthysensis*, from Harbel, Liberia, Taylor & Weyer.

*Rana macrodon*, eggs lack pigment; considered distinct from *R. magna*, Inger (3).—From Thailand, Taylor & Elbel.

*Rana macroglossa*, larvae descd. and figd.; note on status and relationship with *R. palmipes*, Volpe & Harvey.

*Rana m. macrognatha*, from Thailand; photo.; diagnosis and description, Taylor & Elbel.

*Rana magna*, considered a polytypic species and distinct from *R. macrodon*; subspecies:—*acanthi*, *macrocephala*, *visayanus*. Eggs pigmented, Inger (3).

*Rana m. mascareniensis*, from Inyanga district, S. Rhodesia, Fitzsimons.—*R. (Ptychadena) mascareniensis*, from Mt. Nimba; photo. Note on larval characters, Guibé & Lamotte (4).—See also under *Ptychadena*,

*Rana modesta*, considered distinct from *R. magna*; notes on affinity and pattern, Inger (3).

*Rana narina*, of Amami group, Loo Choo Is., Koba.

*Rana nigromaculata*, study of fluorescent "Rana-chrome I", Goto & Hama.—Flavines and pterines in the eye, Hama & Horiuchi.—Cartilage tissue staining using indirect peroxidase reaction, Kawasaki.—Experiments on the neurosecretory system, Kumamoto.—Study of breeding habits in Nanchang suburbs, Ling, K.—Cortical granules in eggs, Osanai.—Conduction velocity in intraocular nerve fibres, Takagi.—Neuro-muscular depression, Takeuchi, A.—Effect of temperature on the neuromuscular junction, Takeuchi, N.—Muscle fibres used in determining the role of intracellular phosphate ions, Umezawa.—*R. n. nigromaculata*, from Honshu, Japan, Alexander & Diener.—Donors of pituitary extract to *Hyla arborea japonica*, Yanai & Takayanagi.

*Rana nigrovittata*, from Thailand; photo., Taylor & Elbel.

*Rana obbiana*, descd.; colour variation, call, habits and habitat; photos., Cherchi (1).

*Rana (Ptychadena) ozyrhynchus* habitat in Mt. Nimba region; photo. Larva descd. and figd., Guibé & Lamotte (4).—See also under *Ptychadena*.

*Rana palmipes*, from Leticia, Colombia; colour and habits; photo., Goin & Layne.—Hybridization and larval development; relationship with *R. macroglossa* discussed, Volpe & Harvey.

*Rana palustris*, of E. Canada; zoogeography, Bleakney, J. S.—From Mississippi caves, Brode.—From cave in Mississippi, Brode & Gunter.—On geographic relations of Ozarkian amphibians, Dowling.—From E. Missouri cave, Myers (3).

*Rana pipiens*, of Long Point, Ontario, Adams & Clark.—Five legged Ohio specimen, Adler (2).—Embryos treated with solutions of ATP, AMP-3, ADP, IDP or mixtures of AMP-3+ATP, Ambellan.—Observations on spinal ganglion cells, Anderson & Breemen.—Experiments on pattern variants, Anderson & Volpe.—Ionic movements and activity in frog

nerves, Asano & Hurlbut.—Control of guanophores, Bagnara (1).—Hormonal control of pigmentation, Bagnara & Neidleman.—Enzymes and their effect on eggs, Barch & Shaver.—Gastrulae differentiation, Barth & Barth.—Of E. Canada; zoogeography, Bleakney, J. S.—Of Cass Co., Minnesota, Brattstrom (1).—Effect of gonadotrophins on testes morphology and thumb pads, Burgos & Ladman.—Cortisone effect on ovulation, Chang & Witschi.—Habitat in Lyon Co., Kansas, Clarke, Breukelman & Andrews.—Depolarization in activating frog twitch muscles, Csapo & Suzuki.—On geographic relations of Ozarkian amphibians, Dowling.—Of Colima and W. Mexico, Duellman (1).—Variation in S. Florida individuals. Note on ecology, food and adaptation to brackish water, Duellman & Schwartz.—Water flow through the gastric mucosa, Durbin, Frank & Solomon.—Development of collagen in the embryo, Edds.—Comparative nucleic acid contents in liver, ova and spermatozoa nuclei, England & Mayer.—Contaminant in egg extracts, Finamore.—Glycogen content of eggs, Fitch & Merrick.—Antigen localisation and induction, Flickinger.—Gradients across vitelline membrane in early stage eggs, Flickinger & Blount.—Tadpoles in hind limb regeneration experiments, Goss.—Sulphonylurea structure-activity relationships, Gourley.—Chloride transport in the gastric mucosa, Heinz & Durbin.—† *Rana cf. pipiens* from Saber-tooth cave, Florida, Holman (1).—*R. pipiens*, rehydration contraction of frozen dried muscle, Hopkins.—Na Cl transport and O<sub>2</sub> consumption in the skin, Huf, Doss & Wills.—Effect of azide and chlorotone on Na and K contents and respiration of sciatic nerves, Hurlbut.—Eserine-acetylcholine interaction in the rectus abdominis muscles, Jenden.—Potential relations in isolated sartorius muscle, Jenerick.—Cartilage tissue staining using the indirect peroxidase reaction, Kawasaki.—Influence of various sound frequencies on respiratory movements, galvanic skin reflex and gastric hunger movements, Kleerekoper & Sibabin.—Enzyme inhibitors on resting potential and ion distribution in the sartorius, Kloot.—Spinal ganglion cells in sodium-free media, Koketsu, Cerf & Nishi.—Electron microscope study of lampbrush chromosomes, La fontaine & Ris.—Blood oxygen capacity, Leftwich.—Development of trunk muscles, Liedke.—Oxygen poisoning of eggs, Malamed (2).—Regeneration after amputation, Malinin & Deck.—Altitudinal distribution, range and habitat in Gómez Farías region, Tamaulipas, Martin.—Tadpole metamorphosis, Money, Meltzer, Young & Rawson.—Interrelations between nuclei and cytoplasm of *R. sylvatica* and *pipiens*, Moore (1).—Transfer of haploid nuclei with *R. sylvatica*, Moore (3).—From E. Missouri cave, Myers (3).—Increased partial pressure of O<sub>2</sub> accelerates development in embryos, Nelsen.—Measurements from disarticulated skeletons, Olson & Miller.—Transsection of the spinal cord, Piatt & Piatt.—Anatomy of sympathetic rami, effects of total and partial sympathectomy, Pick.—Tadpoles and growth under crowded conditions, Richards.—Studies on ovulation, Rondell & Wright.—Histochemistry of oocyte cortical region, Rosenbaum.—RNA and protein in neural induction, Rounds & Flickinger.—Regeneration experiments, Schmidt, A. J.—Effects of adrenal transplants upon forelimb regeneration, Schotté & Wilber.—Adenocarcinoma of the kidney with cytoplasmic or nuclear inclusions, Stolk (1).—Relation between liver weight and degree of restoration after partial hepatectomy, Streett.—Transplantations of haploid nuclei, Subtelny.—Ovulation experiments, Taurand.—Effect of pituitary

extracts from marine and freshwater teleosts on water balance, **Weisel**.—Water exchange and dorsal lymph drainage as affected by Pitressin, **Wilson & Archdeacon**.—Resistance and susceptibility to *O.*, **Wittner & Rosenbaum**.—*R. pipiens brachycephala*, from Baker Co., Oregon, **Ferguson, Payne & Storm**.—Of Glen Canyon, **Tanner**.—*R. pipiens sphenoccephala*, Saber tooth cave, Florida, **Holman** (2).—On saltwater association in Florida, **Neill** (2).

*Rana pretiosa*, life history, **Turner**.—*R. pretiosa luteiventris*, from Baker Co., Oregon, **Ferguson, Payne & Storm**.

*Rana pustulosa*, of Colima and W. Plateau, **Duellman** (1).

*Rana (Ptychadena) retropunctata*, from Mt. Nimba. Distinguished from other *Ptychadena*; photo., **Guibé & Lamotte** (4).

*Rana ridibunda*, of Crimea, **Chernov**.—Ecology from the Carpathians of Slovakia, **Dudich**.—Influence of methylthiouracil on the blood, **Grabie-Broda**.—From Transcaucasia, **Rotter**.—Habitat in N.W. Budapest, **Szabo**.

*Rana rugosa*, distribution of hatching glands, **Yanai & Tokayanagi**.

*Rana septentrionalis*, of E. Canada; zoogeography, **Bleakney, J. S.**—Of Cass Co., Minnesota, **Brattstrom** (1).

*Rana sinaloae*, from 1,500 ft., Colima; occurs also on W. Plateau, **Duellman** (1).

*Rana subaspera*, of Amami group, Loo Choo Is.; photo., **Koba**.

*Rana (Ptychadena) submascareniensis*, from Mt. Nimba; photo. Larvae descd. and figd., **Guibé & Lamotte** (4).

*Rana (Ptychadena) superciliaris*, from Mt. Nimba; range; photo., **Guibé & Lamotte** (4).—See also under *Ptychadena*.

*Rana sylvatica*, hormonal control of pigmentation, **Bagnara & Neidleman**.—Experiments on tadpoles on control of guanophores, **Bagnara** (1).—Of E. Canada; zoogeography, **Bleakney, J. S.**—Cannibalism in tadpoles, **Bleakney, S.**—Habitat in Lyon Co., Kansas, **Clarke, Breukelman & Andrews**.—On geographic relations of Ozarkian amphibians, **Dowling**.—Role of thyroid in kidney development; development and degeneration of pronephros, **Hurley**.—Interrelations between nuclei and cytoplasm of *R. pipiens*, **Moore** (1).—Transfer of haploid nuclei with *R. pipiens*, **Moore** (3).—On Missouri records; S.W. population is *R. s. sylvatica*, **Myers** (2).—Increased partial pressure of *O<sub>2</sub>* accelerates embryonic development, **Nelsen**.—Regeneration experiments, **Schmidt, A. J.**—North-south gradient of body/tibia ratio, *R. s. cantabrigensis* and *R. s. sylvatica* distinguishable at their extreme ranges but not in Wisconsin, **Suzuki**.

*Rana temporaria*, thermal stadia in development, **Bebak**.—Of Marseilles, **Berner**.—Studies of eggs, embryos and larvae giving germ cell information, **Blackler**.—Myocardium in the absence of potassium and influenced by acetyl choline, **Borghgraef & Carmeliet**.—Passive electrical properties of retina, choroid and sclera for radial fields and currents, **Brindley** (1).—Retinal responses to light, **Brindley** (3).

—Dark adapted frogs study of photo-sensitive pigments in the pink and green rods, **Denton & Wyllie**.—Fast and slow muscle fibres, **Gray**.—Origin of nucleoli in oocytes, **Guyénot**.—K tracer in muscle for the study of permeation of ions, **Harris**.—Tadpoles, effects of crowding, **Hodder**.—Diastolic and systolic potentials in heart muscle, **Laquet**.—Intra peritoneal injections of reserpine, **Liébecq-Hutter & Baq**.—Direct absorption of dissolved Strontium-90 and Yttrium-90, **Lucas & Pickering**.—Spawning, **Mertens** (2).—On temperature adaptation of cell enzymes, **Mews**.—Influence of temperature on pulse rate, **Morawaka & Zaleska**.—Regeneration experiments, **Newth** (1).—Mechanism of the initial stages of spermiation, **Oordt**.—Spermatogenic cycle; regulation by temperature, **Oordt**.—Ultrastructure of Schmidt-Lauterman clefts and related shearing defects of the myelin sheath, **Robertson**.—Action of tetraiododesaminothyronine on tadpole metamorphosis, **Roth** (1).—Action of thyroxamine on metamorphosing tadpoles, **Roth** (2).—Spawning and ecology, **Rühmekorf** (1).—Action of light, **Rühmekorf** (3).—Larval temperature selection, **Rühmekorf** (2).—Action of sodium fluoride on metamorphosis, **Saadi-Nazim**.—In marshy areas of Dernford Fen, **Sharp**.—Blood pressure and pressure pulses in arterial arches, **Simons**.—Ovulation experiments, **Taurand**.—Tadpoles their electromotive forces and their significance, **Viaud & Dreyfus**.—Control of gonadotroph activity, **Vivien & Schott**.—Oocytes concentrations of iodine and thyroid hormones, **Volpent, Michel & Roche**.—Acetylcholine contracture of muscle, **Zelený & Kozák**.—*R. t. temporaria*, effects of tryptafavin on mitosis in tadpoles, **Meyer**.—Spawning site observations, **Warwick**.

*Rana tigrina*, cytoplasmic inclusions in ageing neurones, **Malhotra**.—Lipids in oogenesis, **Nath, Gupta & Kaur**.—*R. tigrina crassa*, on cannibalistic habits, **Morgan-Davies** (3).—*R. tigrina pantherina*, from Thailand, **Taylor & Elbel**.

*Rana (Ptychadena) tournieri*, from Mt. Nimba; range; photo., **Guibé & Lamotte** (4).

*Rana venulosa* Laurenti, 1768, specific name as published in the above combination to be placed on the Official Index of Specific Names, (specific name of type sp. of *Phrynohyas* Fitzinger, 1843), **Opinion 520**.

*Rana virgatipes*, on occurrence in Maryland and Delaware, **Conant** (1).—From Worcester Co., Maryland, **Reed** (2).

*Rana viridis*, reactions caused by stimulation of the horizontal semi-circular canal, **Gribenski**.

*Trichobatrachus robustus*, importance of hair as a possible means of discrimination by the sexes, **Mertens**. (1).—Habits and habitat and note on function of "hairs"; photo., **Perret** (3).

#### HYBRIDS

*Rana esculenta* ♀ × *Bufo viridis* ♂, **Hertwig, Weiss & Ziemann**.

*Rana pipiens* ♀ × *R. sylvatica* ♂, **Hertwig, Weiss & Ziemann**.

*Rana pipiens* × *R. sylvatica*, transfer of haploid nuclei, **Moore** (3).

## RHACOPHORIDAE

*Afrizalus dorsalis*, *A. fulvovittatus* *fulvovittatus*, from Mt. Nimba; photos.; habitats; larvae descd. and figd. *A. wiedholzi*, from Mt. Nimba; note on habitat and range; photo., Guibé & Lamotte (4).—*A. dorsalis regularis*, from Boma Terr., Lower Congo, Laurent (2).

*Chiromantis petersi kelleri*, breeding and development; photos., Cherchi (2).—*C. rufescens*, from Mt. Nimba; photo. Arboreal form from humid forest. Larva descd. and figd., Guibé & Lamotte (4).—*C. rufescens*, *C. xerampelina*, on nesting habits, figs., Verbaak.

*Hylambates (Phlyctimantis) leonardi*, from Mt. Nimba; photo.; habitat; larva descd. and figd., Guibé & Lamotte (4).

*Hyperolius*, Key to forms occurring in Mt. Nimba region. Descriptions, photographs, variation, Laurent (1).—*H. acutirostris*, photo., Laurent (1).—[*H.*] *Rappia aylmeri*, E. G. Boulenger=*H. fusciventris*, Laurent (1).—*H. baumanni*=*H. picturatus*, Laurent (1).—*H. chlorosteus*, of French Guinea. May include *H. pleurotaenius* (non Boulenger), Laurent (1).—*H. c. concolor*, of Mt. Nimba region. Includes *guineensis*, *depressus* and *togoensis*. Compared with *H. picturatus*; photo., Laurent (1).—*H. depressus*=*H. c. concolor*, Laurent (1).—*H. festivus*=*H. picturatus*, Laurent (1).—*H. f. fusciventris*, of Mt. Nimba. Includes *Rappia aylmeri*, *H. oeseri*, *H. trifasciatus*. Discussion on affinities with *H. burtoni*. Photo., Laurent (1).—*H. granulatus*, of Mt. Nimba; discussion on relationship with *oxyrhynchus*, Laurent (1).—*H. guineensis*=*H. c. concolor*, Laurent (1).—*H. guttulatus*, of Yanlé, Mt. Nimba. Includes *H. reticulatus*, *H. lagoensis* and *H. liberiensis*. Photo., Laurent (1).—*H. lagoensis*=*H. guttulatus*, Laurent (1).—*H. lamottei*, larval development and metamorphosis fully descd. and figd., Arnoult & Lamotte.—*H. lamottei* sp. nov. p. 292, photo., from between Zougoué and Serengbara, Mt. Nimba. Related to *H. quinquevittatus*, Laurent (1).—*H. liberiensis*=*H. guttulatus*, Laurent (1).—*H. marmoratus*, from Inyanga district, S. Rhodesia; note on colour variation, Fitzsimons. Suggestion that the Ponds reed frog is a colour-variant, Wager (1).—*H. m. quarrei*, from Kasai, Belgian Congo, Laurent (2).—*H. nanutus*, from Inyanga district, S. Rhodesia, Fitzsimons.—*H. oeseri*=*H. fusciventris*, Laurent (1).—*H. picturatus*, of Mt. Nimba. Discussion on status and relationships; includes *H. baumanni* and *H. festivus*. Compared with *H. c. concolor*. Photo., Laurent (1).—*H. polli*, from Kasai, Belgian Congo, Laurent (2).—*H. reticulatus*=*H. guttulatus*, Laurent (1).—*H. rosaceus*, of Mt. Nimba region. Note on colour and ecology; photo., Laurent (1).—*H. togoensis*=*H. c. concolor*, Laurent (1).—*H. verrucosus*, compared with the painted reed frog. *H. marmoratus*, Wager (1).—*H. viridiflavus nimbae* subsp. nov. p. 290, photo., from Yanlé, Mt. Nimba, Laurent (1).—*H. zonatus*, larval development and metamorphosis descd. and figd., Arnoult & Lamotte.—*H. zonatus*, sp. nov. p. 276, photo., Yanlé, Mt. Nimba. Distinguished from *H. acutirostris* and *H. pulcher*, Laurent (1).

*Kassina*, Species listed. *K. argyreivittis*, *K. somalica*, *K. benueana* considered synonyms of *senegalensis*. *K. angeli*, *K. owamboensis* considered races of *senega-*

*lensis*. *K. poweri* considered a synonym of *Hylambates maculatus*. Species and subspecies recognised:—*cassinoides*, *maculata*, *cochranae*, *decorata*, *maculosa*, *maculifer*, *obscura*, *abyssinica*, *kounhiensis*, *pulchra*, *wittei*, *meritensis*, *kuwangensis*, *w. weali*, *w. fitzsimonsi*, *w. quinquevittata*, *modesta*, *poweri*, *thabanchuensis*. Three distinct species occur in Cameroun:—*s. senegalensis*, *cassinoides* and *decorata*; note on biotope. *K. decorata* descd., notes on colour pattern variation, vomerine teeth, biotope and call; photos.; larva descd., mouth parts figd., Perret (2).—*K. argyreivittis ruandae*, from Ituri, Laurent (2).—*K. ? decorata* from Mt. Nimba; photo.; larva descd. and figd., Guibé & Lamotte (4).

*Leptopelis*, species recognised from French Camerouns:—*notatus*, *ocellatus*, *brevisrostris*, *calcaratus*, *palmatus*, *boulengeri*, *aubryi*, *millsoni*, *anchietae*, *viridis*, Perret (1).—*L. aubryi*, *L. viridis*, from Mt. Nimba; photo.; characters; hand figd., Guibé & Lamotte (4).—*L. brevisrostris*, of Fr. Camerouns. Note on colouration and reproduction. Photo., Perret (1).—*L. notatus*, includes *L. tesmanni* and probably also *L. haugi*. Notes on colour pattern variations, habitat in Fr. Camerouns, voice and reproduction; photos., Perret (1).—*L. ocellatus*, includes *Nyctibates laevis* and *L. acuticeps*. Note on colouration. Photo., Perret (1).

*Philautus schmardanus*, general note; fig., Morgan-Davies (3).

*Phlyctimantis leonardi*, from Boma Terr., Lower Congo; distinguished from *verrucosus*, Laurent (2).—See also under *Hylambates*.

*Polypedates*, see under *Rhacophorus*.

*Rhacophorus*, larvae fractionation of radio iodine, Koshida (2).—*R. appendiculatus appendiculatus* first record from Negros Island, Alcala (2).—*Polypedates* [*Rhacophorus*] *buergeri*, notes on hatching glands, Yanai. —*R. cruciger*, *R. leucomystax maculatus*, range of colour variation and descriptions; photos., Silva. —*R. c. cruciger*, reproduction, metamorphosis and ecology descd. and figd., Morgan-Davies (1). —*R. c. cruciger*, *R. c. eques*, general notes; photo. of nominate form and description of nest and spawn, Morgan-Davies (3).—*R. japonicus*, of Amami group, Loo Choo Is., Koba. —*R. l. leucomystax*, of Thailand; photo., Taylor & Elbel. —*R. microtympum*, life history notes, Morgan-Davies (3).—*R. schlegelii*, tadpoles abnormal gonadal differentiation due to gonad trophic injections, Iwasawa (1).—Sex reversal in thiourea-treated tadpoles, Iwasawa (2). —*R. schlegelii amamiensis*, of Amami group, Loo Choo Is., Koba. —*R. schlegelii arborea* metabolites in the perivitelline fluid, Arima. —Observations on movements, Kato (1). —Breeding habits, Kato (2). —Iodine accumulation in pigmented tissues, Koshida (1).—*R. s. schlegelii*, from Honshu, Japan, Alexander & Diener.

## RHINODERMATIDAE

*Rhinoderma darwini*, distribution, Capurro (1).

## SCAPHIOPODIDAE

*Scaphiopus*. Absence of isolation mechanisms (call and genetic incompatibility) between *S. holbrooki* and *S. hurteri*, Blair (5).—*S. bombifrons*, figured with sonagram p. 186, Bogert. —Parasitism of tadpoles by *Saprolegnia*, Bragg, A. N. & W. N. —Of S. Dakota, Woodbury. —*S. couchi*, figured with sonagram p. 186,

**Bogert**.—From Gómez Farías, Tamaulipas, **Martin**.—*S. hammondi* figured with sonagram p. 186, **Bogert**.—[*Scaphiopus*] *Spea h. hammondi*, from Pima Co., Arizona, **Williams & Chrapliwy**.—*S. hammondi intermontanus*, of Glen Canyon, **Tanner**.—*S. holbrooki*, of S. Florida; variation, habitat, call, breeding, food, **Duellman & Schwartz**.—†*Scaphiopus holbrooki*, from Pleistocene of Saber tooth cave, Florida, **Holman** (1).—*S. holbrooki*, formulae for body measurement relationships, **Pearson** (2).—*S. h. holbrooki*, reproductive behaviour, **Hansen**.—Population ecology, **Pearson** (1).—Distribution in the U.S.A., skull figured p. 314 f. 2a and relation to *S. h. hurteri* discussed, **Wasserman**.—*S. holbrooki hurteri*, on mass movement of tadpoles and daytime breeding, **Bragg** (1).—On geographic relations of Ozarkian amphibians, **Dowling**.—Distribution in the U.S.A.; cross breeding tests indicate that it should be regarded as a subspecies of *S. h. holbrooki*; skull figured p. 314, **Wasserman**.—*S. h. hurteri* × *S. h. holbrooki* indicates that *hurteri* should be regarded as a subsp. of *holbrooki*, hybrid skull figured p. 314 f. 2b, **Wasserman**.

#### †SUPER ORDER

##### STEGOCEPHALI

†As yet undetermined fragmentary Labrinthodont plates—first ever recorded from China, **Huene** (1).

#### †ORDER EMBOLOMERI

†*Gyracanthus* spine from the mid-carboniferous of Nova Scotia, **Romer**.

†*Pholiderpeton* (?) *bretonensis* sp. nov. p. 6, specific diagnosis valueless. Mid Carboniferous, Nova Scotia, **Romer**.

†*Sagenodonus* crushed quadrate found in Nova Scotia, mid Carboniferous deposits, **Romer**.

#### ORDER RHACHITOMI

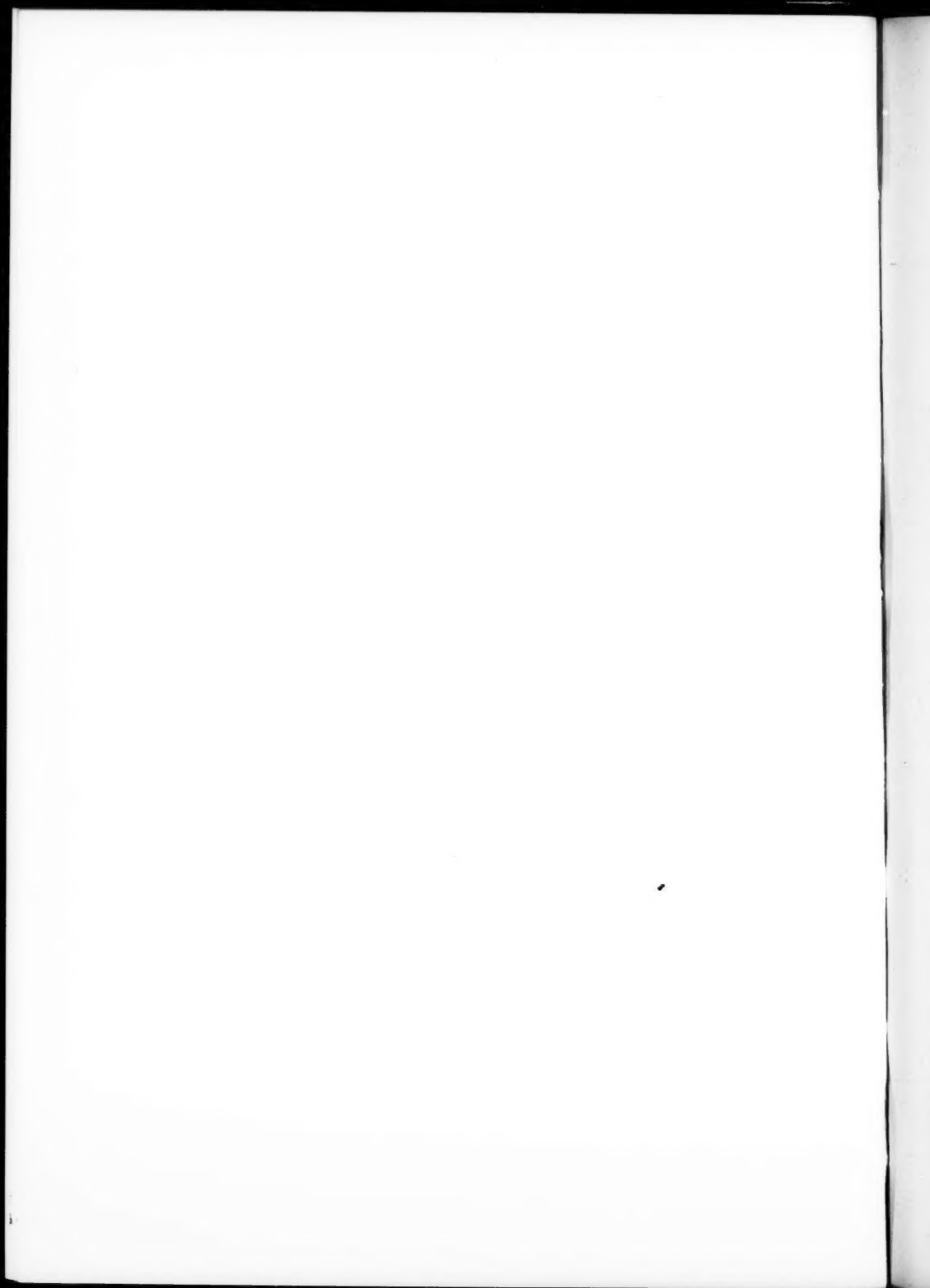
†Rhachitomi from the Triassic of India, **Huene** (2).

†Neorhachitomi from the Triassic of Central India, **Huene** (2).

#### ORDER STEREOSPONDYLI

†Stereospondyli from the Triassic of Panchet and Mangli, India, **Huene** (2).

†*Laidleria* gen. nov. p. 68, text-figs. 16-19, of Trematosauridae, *L. gracilis* sp. nov. p. 68, Lower Triassic (*Cynognathus*-zone) Elucwecwe in the Engcobo district, Eastern Cape Province, **Kitching**.



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